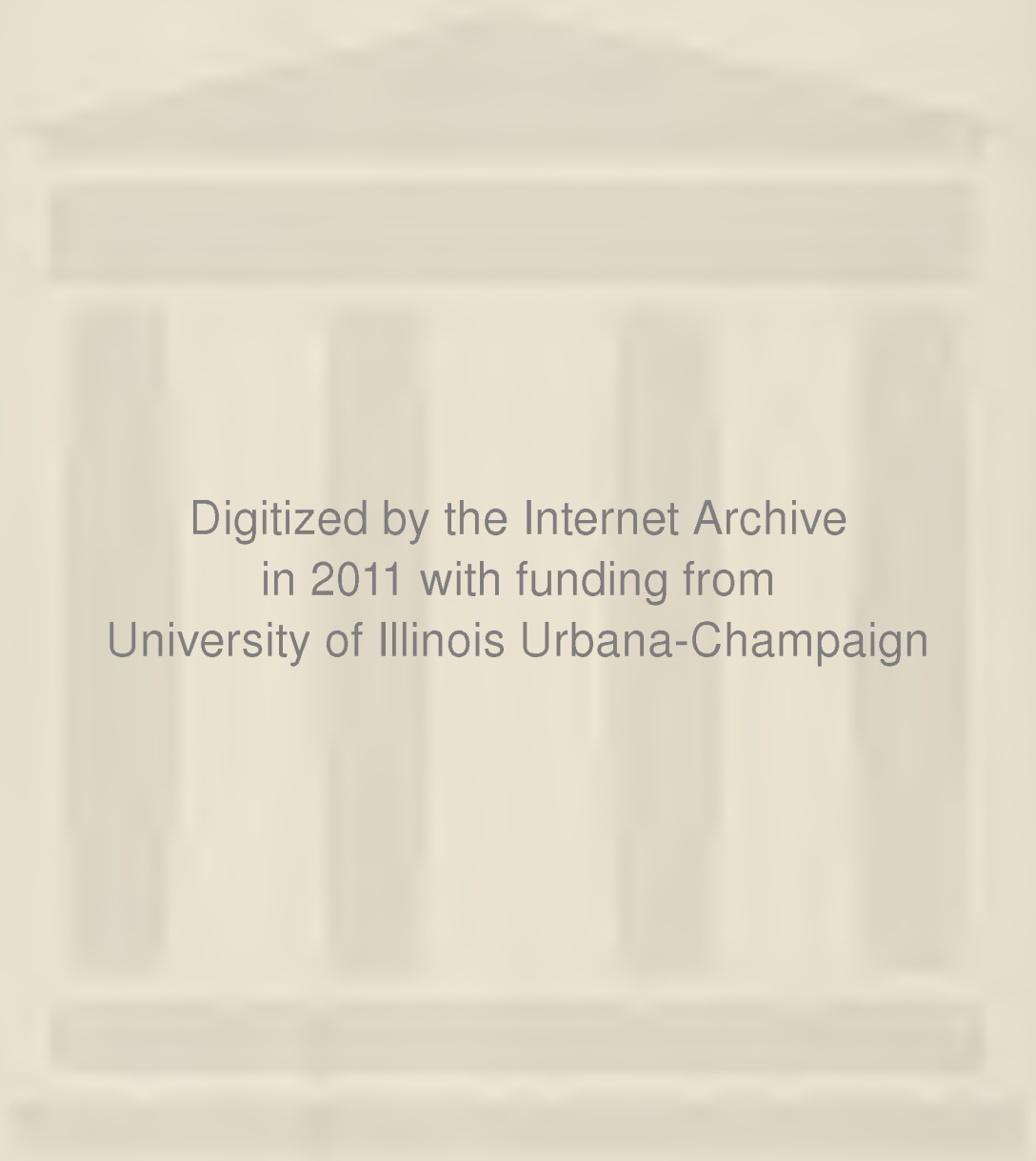
FARM FINANCIAL RECORD STUDIES 1931



ANNUAL FARM BUSINESS REPORTS PREPARED FROM RECORDS KEPT IN THE ILLINOIS FARM FINANCIAL RECORD BOOK FOR 41 AREAS FOR 1931

Prepared by the Department of Farm Organization
and Management of the University of Illinois

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN WILL COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, H. G. Russell, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Will County, was lower in 1931 than in 1930. In 1930 the average net income was $671 per farm while in 1931 there was an average loss of $620 per farm. In 1930, however, $884 per farm was deducted for the labor of the operator and the family as compared with $744 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2262 in excess of cash expenses as compared with $1210 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year then at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*L. W. Braham, farm adviser in Will County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Will County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$2 809	$2 228	
Feed, grain and supplies	2 053	1 500	
Machinery	2 068	2 069	
Improvements	5 178	5 225	
Total inventory	$12 108	$11 022	
Decrease in inventory			$1 086
Total cash sales for 1931			3 761
Total cash purchases for 1931			2 551
Excess of cash sales over cash purchases			1 210
Decrease in inventory			1 086
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			124

There was decrease of $581 in the livestock inventory and $553 in the grain inventory the latter being due to the slump in grain prices and the lower yields of small grains in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Will County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 80 to 432 acres per farm. Four were smaller than 100 acres and 5 were larger than 300 acres. The average size for all farms in the group was 200 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	4	260 - 299	2
100 - 139	7	300 - 339	1
140 - 179	5	340 - 379	1
180 - 219	2	380 - 419	0
220 - 259	5	420 - 459	3

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $42 to $89 on 5 farms; $90 to $149 on 16 farms, and $150 to $189 on 8 farms. One farm was valued at $225 per acre. The average value was $119 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $179 per acre.

As previously stated, the averages for all farms indicated a loss of $620 per farm after deducting $744 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1821 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249; while the operators of 7 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	1	$ -750 to -1 249	5
1 249 to 750	0	-1 250 to -1 749	2
749 to 250	2	-1 750 to -2 249	4
249 to -249	10	-2 250 to -2 749	0
-250 to -749	5	-2 750 to -3 249	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 162 acres in size as compared with 232 for the less profitable group. The smaller farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, and there was but little difference in the crop yields. The most profitable farms grew 5.9 bushels more corn, .4 bushels more oats, .5 bushels less barley, and 2.6 bushels less wheat per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $263 per farm lower than the beginning inventory, while on the less profitable farms it was $830 less than the beginning inventory.

The investment per farm in livestock was $641 less on the more profitable farms than on the less profitable, yet the income was $641 per farm higher, while at the same time the increase from the feed and grain account was larger by $104. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $161 for the more profitable farms as compared with $80 for the less profitable farms. A part of the difference in the returns for feed fed is because of the difference in the kinds of livestock produced. There were only 2 litters of pigs farrowed per farm on the more profitable farms as compared with 10 litters per farm on the less profitable group. The high profit farms, however, had more income from poultry and dairy sales than had the low profit farms. Dairy sales were $24 per cow higher and returns per $100 invested in poultry $146 higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $14.63 as compared with $7.19 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed but little difference. The average expense per acre for the most profitable farms was $12.89 as compared with $13.92 for the least profitable group. The cost of power and machinery was $.34 per crop acre lower for the more successful farms, and the man labor cost was $.84 an acre higher. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $48 per farm in the feed and grain account, as compared with a gain of $56 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.74 per acre for the more profitable farms as compared with a loss of $6.73 per acre for the less profitable group. For the first group this was a return of .91% on the capital invested in the business and for the second group a loss of 3.68%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery and improvements accounts.

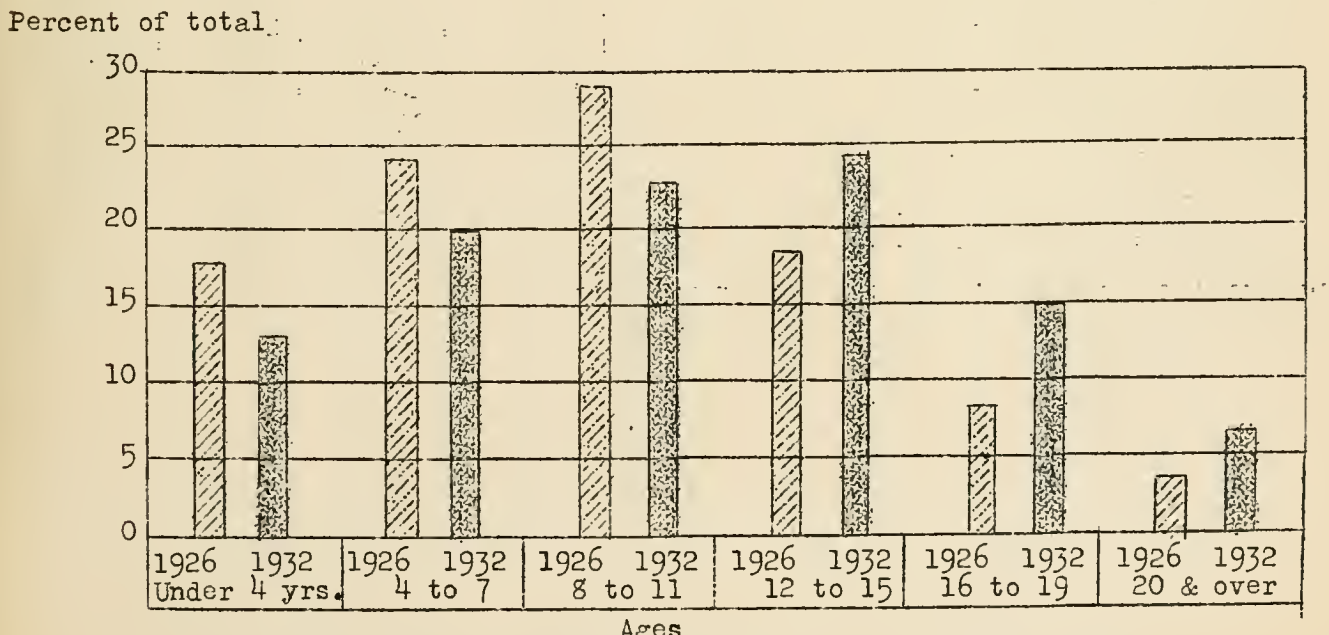
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Will County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $28 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The year 1931 is the only one of the last five when there was a decrease in the crops account for the Will County farms.

Comparison of Earnings and Investments on Accounting Farms in Will County for 1927-1931

Items	1927	1928	1929[1]	1930	1931
Number of farms	27	30	40	31	30
Average size of farms, acres	200	188	217	205	200
Average rate earned, to pay for management, risk and capital	4.6%	4.7%	4.3%	1.5%	-1.7%
Average labor and management wage	$513	$591	$342	$-747	$-1821
Gross income per acre	23.62	24.49	22.67	16.74	9.57
Operating cost per acre	13.02	13.44	12.79	13.47	12.67
Average value of land per acre	172	169	163	147	119
Total investment per acre	230	235	228	211	179
Investment per farm in:					
Total livestock	2986	2848	3489	2824	2809
Cattle	1496	1567	2063	1732	1774
Hogs	777	613	643	473	474
Poultry	182	176	177	170	149
Gross income per farm	4723	4595	4919	3436	1913
Income per farm from:					
Crops	1749	1573	1333	564	--
Miscellaneous income	69	111	47	25	30
Total livestock	2905	2911	3539	2847	1883
Cattle	635	431	652	340	--
Dairy sales	1214	1444	1389	1373	1282
Hogs	782	707	1073	829	346
Poultry	249	298	370	305	250
Average yield of corn in bu.	27	45	40	30	36
Average yield of oats in bu.	39	46	36	45	29

1/ Records from Kendall County included for 1929.

Investments, Receipts, Expenses, and Earnings on
30 Will County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		23 715	21 312	27 037
Farm improvements		5 178	3 753	7 155
Livestock total		2 809	2 563	3 204
Horses		403	405	482
Cattle		1 774	1 745	1 887
Hogs		474	246	678
Sheep		9	19	2
Poultry		149	148	155
Machinery and equipment		2 068	1 630	2 714
Feed, grain and supplies		2 053	1 712	2 436
Total capital investment	$	$35 823	$30 970	$42 546
RECEIPTS AND NET INCREASES				
Livestock total		1 883	2 295	1 654
Horses		--	--	--
Cattle		--	--	--
Hogs		346	229	414
Sheep		5	2	4
Poultry		28	20	--
Egg sales		222	300	126
Dairy sales		1 282	1 744	1 110
Feed, grain and supplies		--	56	--
Labor off farm		27	16	11
Miscellaneous receipts		3	1	6
Total receipts & net increases	$	$ 1 913	$ 2 368	$ 1 671
EXPENSES AND NET DECREASES				
Farm improvements		260	173	372
Horses		10	2	2
Miscellaneous livestock decreases				
Poultry				6
Cattle		42	96	313
Machinery and equipment		539	362	708
Feed, grain and supplies		85	--	48
Livestock expense		42	37	44
Crop expense		179	140	196
Hired labor		318	234	488
Taxes		279	260	303
Miscellaneous expenses		35	32	37
Total expenses & net decreases	$	$ 1 789	$1 336	$2 517
RECEIPTS LESS EXPENSES	$	$ 124	$1 032	$ -846
Total unpaid labor		744	750	718
Operator's labor		590	600	600
Family labor		154	150	118
Net income from investment and management		-620	282	-1 564
RATE EARNED ON INVESTMENT	%	-1.73%	.91%	-3.68%
Return to capital and operator's labor and management		-30	882	-964
5% of capital invested		1 791	1 548	2 127
LABOR AND MANAGEMENT WAGE	$	$-1 821	$ -666	$-3 091

Chart for Studying the Efficiency of Various Parts of Your Business
Will County, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

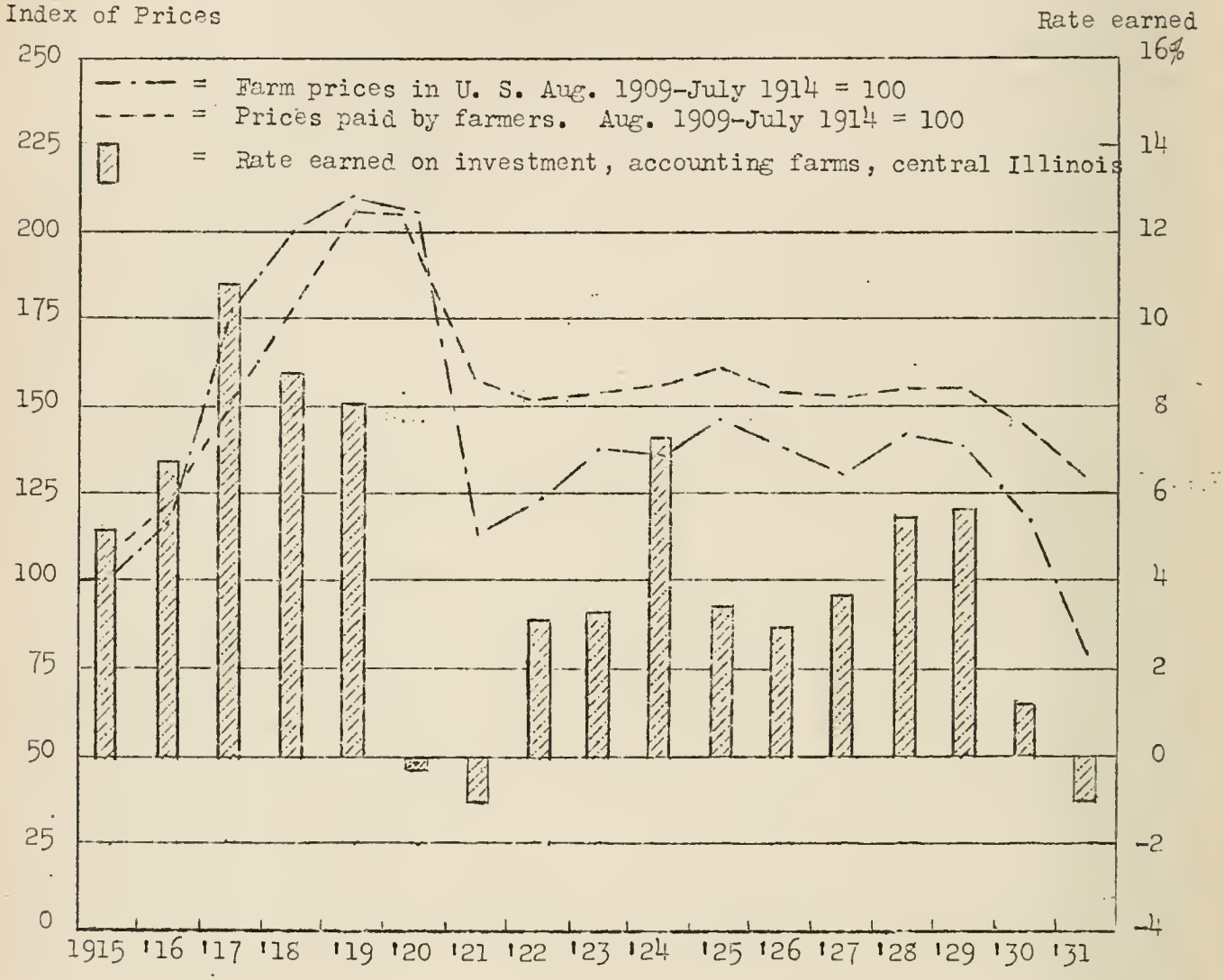
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acro	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.25	50	43	37	110	250	85	190	155	18	1.00	34	60	17	4 000	340
4.25	48	41	35	105	240	80	180	150	17	1.50	37	70	16	3 700	320
3.25	46	39	33	100	230	75	170	145	16	2.00	40	80	15	3 400	300
2.25	44	37	31	95	220	70	160	140	15	2.50	43	90	14	3 100	280
1.25	42	35	29	90	210	65	150	135	14	3.00	46	100	13	2 800	260
.25	40	33	27	85	200	60	140	130	13	3.50	49	110	12	2 500	240
-.75	38	31	25	80	190	55	130	125	12	4.00	52	120	11	2 200	220
-1.75	36	29	23	75	180	50	120	120	11	4.50	55	130	10	1 900	200
-2.75	34	27	21	70	170	45	110	115	10	5.00	58	140	9	1 600	180
-3.75	32	25	19	65	160	40	100	110	9	5.50	61	150	8	1 300	160
-4.75	30	23	17	60	150	35	90	105	8	6.00	64	160	7	1 000	140
-5.75	28	21	15	55	140	30	80	100	7	6.50	67	170	6	700	120
-6.75	26	19	13	50	130	25	70	95	6	7.00	70	180	5	400	100
-7.75	24	17	11	45	120	20	60	90	5	7.50	73	190	4	100	80
-8.75	22	15	9	40	110	15	50	85	4	8.00	76	200	3	--	60

Factors Helping to Analyze the Farm Business on
30 Will County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	199.7	161.9	232.4
Percent of land area tillable		86.5	89.7	83.9
Gross receipts per acre	_____	9.57	14.63	7.19
Total expenses per acre		12.67	12.89	13.92
Net receipts per acre		-3.10	1.74	-6.73
Value of land per acre		119	132	116
Total investment per acre		179	191	183
Acres in Corn	_____	70.5	60.0	82.8
Oats	_____	25.4	28.8	31.2
Wheat	_____	21.3	13.4	30.9
Barley	_____	13.2	8.9	10.3
Crop yields--Corn, bu. per acre	_____	35.6	39.9	34.0
Oats, bu. per acre	_____	29.3	29.6	29.2
Wheat, bu. per acre	_____	23.4	21.0	23.6
Barley, bu. per acre	_____	29.6	29.9	30.4
Value of feed fed to productive livestock	_____	1 519	1 364	1 668
Returns per $100 of feed fed to productive livestock	_____	121	161	80
Returns per $100 invested in:				
Cattle	_____	.77	104	49
Poultry	_____	179	232	86
Pigs weaned per litter	_____	6.4	--	6.0
Income per litter farrowed	_____	51	--	43
Dairy sales per dairy cow	_____	120	125	101
Investment in productive livestock per acre	_____	10.63	12.03	9.86
Receipts from productive livestock per acre	_____	9.22	13.58	5.74
Power and machinery cost per crop acre	_____	4.51	4.35	4.69
Machinery cost per crop acre	_____	3.40	2.82	3.77
Value of feed fed to horses	_____	167	194	170
Man labor cost per $100 gross income	_____	54	41	72
Man labor cost per acre	_____	5.18	5.98	5.14
Expenses per $100 gross income	_____	132	88	194
Farm improvements cost per acre	_____	1.30	1.07	1.60
Farms with tractor	_____	87%	80%	100%
Excess of sales over cash expenses	_____	1 210	1 789	727
Decrease in inventory	_____	1 086	757	1 573

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

In a period when the general price-level falls rapidly the prices farmers receive for their products drop faster and farther than the prices they pay for commodities used in production and in living. In other words, the farmer's purchasing power becomes very low. In 1921 the farmer's dollar would purchase only 75% as much as it would before the war (1910-1914). By 1922, however, the general price level had improved slightly and the farmer's purchasing power increased to 88% and remained near this level through 1929. During 1930 and 1931 the general price level declined again, the farmer's purchasing power dropping to 80 in 1930 and by the end of 1931 to 51% of the 1910-1914 level.

If the all-commodities price index should remain unchanged for a period of years, farm incomes would increase again as they did from 1922 to 1929. This is true even at the present low price level. Improvement in farm earnings would be the result of an increase in the price of farm products and a decrease in the price of things which the farmer must buy to run his business. Operating costs lag behind the price of farm products on a downward movement in the general level and also during upswings. Adjustments take place slowly, but farm profits are possible even with a low level of prices if there are no sudden drops. Farm costs finally are adjusted to the prices of farm products, and operators who do not have heavy debts are able to make money. Debts contracted at a high price level will continue to be burdensome so long as the price level is low even though it is unchanging. The man with no debts is, therefore, in a much more favorable position than the man with interest payments to meet. In the period from 1880 to 1896 the general price level was low. Farm products were cheap but production costs were low also, and some hired men bought and paid for farms.

Competition for the ownership of land will continue in the future as in the past. Our farms will be owned by those individuals who can operate them with the highest efficiency. Low cost for a unit of product should always be the objective of any producer. Certainly the farmer who has high crop yields, high production per cow, efficient hogs and poultry, and low labor, power and machinery costs is better able to pay the taxes and interest on the mortgage than the farmer who is less efficient. Under our system of private ownership of land, farmers will find it to their advantage to increase their acre yields of crops and the efficiency of their livestock as long as doing so cuts the cost per unit of product.

Profitable Farm Practices for 1932

In a period of rapidly declining prices, the cost side of the farm business requires more than normal attention. It is important to keep cash costs low since gross incomes are drastically reduced. The income side of the business cannot be neglected but those practices which give increased production with little cash outlay take precedence over those which make heavier cash demands. Records secured from accounting farms furnish the best basis of deciding which practices will be most profitable in 1932. An analysis of profitable farm practices for Illinois conditions has been made in University of Illinois Circular Number 389. The title of this circular is "Farm Practices That Pay" and a copy is available for each account cooperators. We suggest that a careful study of this Circular may aid you in increasing your farm earnings for 1932.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914, H. W. Mumford, Director.

ANNUAL FARM BUSINESS REPORT ON FIFTY-FOUR FARMS IN KENDALL, DUPAGE, COOK, KANE, MCHENRY, AND LAKE COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, J. W. Reitz, and H. C. M. Case*

The average of farm earnings on account keeping farms in the Chicago area was lower in 1931 than in 1930. In 1930 the average net income was $1034 per farm while in 1931 there was an average loss of $13 per farm. In 1930, however, $1087 per farm was deducted for the labor of the operator and the family as compared with $812 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor; so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2509 in excess of cash expenses as compared with $1873 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*W. P. Miller, H. S. Wright, O. G. Barrett, H. P. Kelley, C. W. Harrey, and H. C. Gilkerson, farm advisers in Kendall, DuPage, Cook, Kane, McHenry, and Lake counties cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 54 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$3 549	$3 105
Feed, grain and supplies	2 128	1 547
Machinery	1 955	1 927
Improvements	5 690	5 669
Total inventory	$13 322	$12 248
Decrease in inventory	$1 074	
Total cash sales for 1931	$4 725	
Total cash purchases for 1931	2 852	
Excess of cash sales over cash purchases	1 873	
Decrease in inventory	1 074	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	799	

The decrease in the grain account was due to a decline in the amount of grain on hand as well as the decline in price. Crop yields in this area were better in 1930 than in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in this area. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 54 farms included in this study ranged in size from 80 to 350 acres per farm. Six were smaller than 100 acres and 5 were larger than 300 acres. The average size for all farms in the group was 187 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	6	220 - 259	9
100 - 139	9	260 - 299	4
140 - 179	11	300 - 339	4
180 - 219	10	340 - 379	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 54 farms included in the present study, the value of bare land per acre was $70 to $109 on 18 farms; $110 to $149 on 22 farms, and $150 to $209 on 14 farms. The average value was $121 per acre for the bare land. The average investment, including land, improvements, livestock, machinery, and grain, was $193 per acre.

As previously stated, the average for all farms indicated a loss of $13 per farm after deducting $812 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1236 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Eight of the farms netted their operators incomes of more than $749, while the operators of 3 farms sustained losses of more than $1749. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$2 749 to 2 250	2	$ -250 to -749	11
2 249 to 1 750	1	-750 to -1 249	3
1 749 to 1 250	2	-1 250 to -1 749	3
1 249 to 750	3	-1 750 to -2 249	1
749 to 250	13	-2 250 to -2 749	0
249 to -249	13	-2 750 to -3 249	2

A comparison of the 18 farms having the highest rate earned on investment with the 18 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 161 acres in size as compared with 224 for the less profitable group. The smaller farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 4.6 bushels more corn, .3 bushels less oats, and 6.4 bushels more barley per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $177 per farm less than the beginning inventory, while on the less profitable farms it was $1094 less than the beginning inventory.

The investment per farm in livestock was $370 less on the most profitable farms than on the least profitable, yet the income was $1418 per farm higher while at the same time the decrease from the feed and grain account was smaller by $591. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $178 for the more profitable farms as compared with $113 for the less profitable farms. There were 6.4 pigs weaned per litter on the more profitable farms but only 6.2 on the less profitable farms. Dairy sales were $46 per cow higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $24.68 as compared with $11.46 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed but little difference, although the difference was in favor of the less profitable farms. The average expense per acre for the most profitable farms was $18.31 as compared with $16.32 for the least profitable group. The cost of power and machinery was $2.00 per crop acre higher for the more successful farms, and the man labor cost was $1.58 an acre higher. The less profitable farms had a loss of $809 per farm in the feed and grain account, as compared with a loss of $218 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $6.37 per acre for the more profitable farms as compared with a loss of $4.86 per acre for the less profitable group. For the first group this was a return of 3.05% on the capital invested in the business and for the second group a loss of 2.85%. The higher income per acre on the more profitable farms was due to the more efficient livestock. The lower expenses per acre for the less profitable farms were due to savings made in the machinery, labor, and improvements accounts.

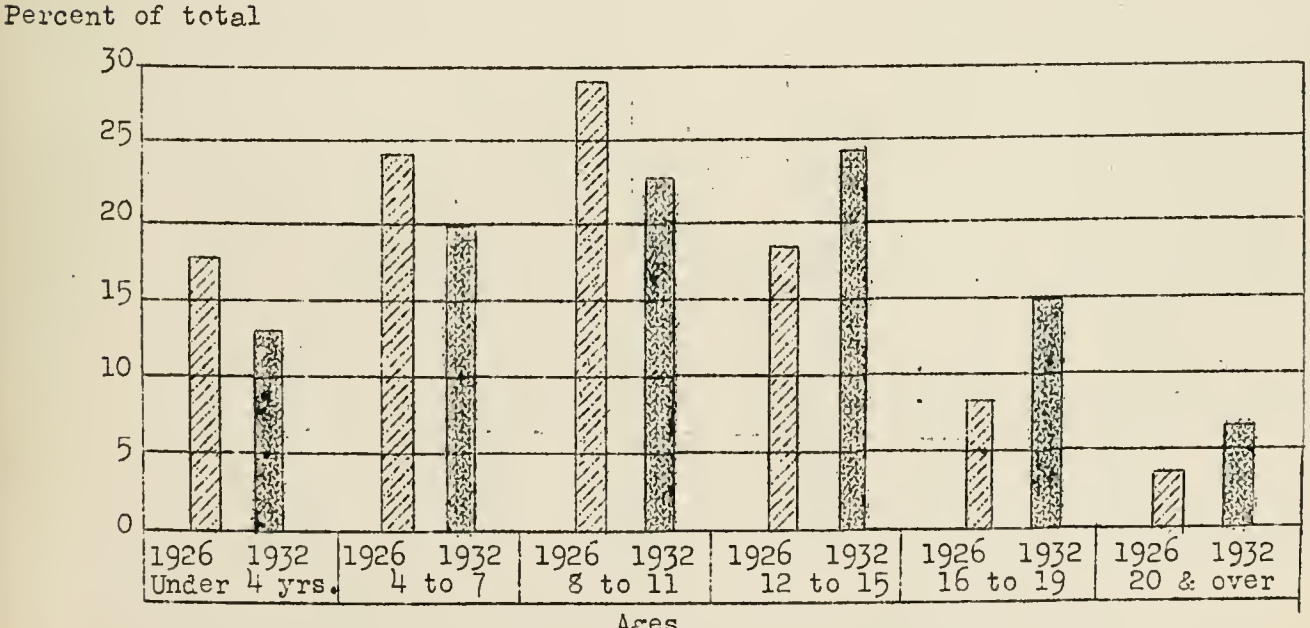
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Kendall, DuPage, Cook, Kane, McHenry, and Lake counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $24 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Kendall, DuPage, Cook, Kane, McHenry, and Lake Counties for 1927-1931

Items	1927	1928	1929	1930	1931
Number of farms	60	54	47	50	54
Average size of farms, acres	154	144	152	171	187
Average rate earned, to pay for management, risk, and capital	5.0%	6.5%	5.9%	2.7%	-.04%
Average labor and management wage	$708	$1 209	$992	$-137	$-1236
Gross income per acre	32.84	34.43	34.76	23.46	16.64
Operating cost per acre	21.56	19.81	20.50	17.40	16.71
Average value of land per acre	128	133	147	145	121
Total investment per acre	224	224	243	223	193
Investment per farm in:					
Total livestock	4 673	4 126	4 228	3 780	3 549
Cattle	3 691	3 299	3 212	2 536	2 514
Hogs	342	264	424	431	442
Poultry	178	156	165	198	164
Gross income per farm	5 057	4 958	5 284	4 004	3 106
Income per farm from:					
Crops	--	191	2	544	--
Miscellaneous income	49	63	62	77	38
Total livestock	5 008	4 704	5 220	3 383	3 068
Cattle	601	783	885	193	38
Dairy sales	3 782	3 298	3 162	2 155	2 216
Hogs	329	317	804	747	531
Poultry	278	293	362	276	276
Average yield of corn in bu.	35	42	43	37	43
Average yield of oats in bu.	51	49	41	51	41

Investments, Receipts, Expenses, and Earnings on 54
Kendall, DuPage, Cook, Kane, McHenry, and Lake County Farms, 1931

Items	Your farm	Average of 54 farms	18 most profitable farms	18 least profitable farms
CAPITAL INVESTMENTS				
Land		22 627	20 080	24 177
Farm improvements		5 690	5 949	5 315
Livestock total		3 549	3 686	4 056
Horses		386	358	484
Cattle		2 514	2 834	2 698
Hogs		442	309	625
Sheep		43	6	84
Poultry		164	179	165
Machinery and equipment		1 955	2 128	1 907
Feed, grain and supplies		2 128	1 818	2 634
Total capital investment	$	$35 949	$33 661	$38 089
RECEIPTS AND NET INCREASES				
Livestock total		3 068	3 933	2 515
Horses		--	--	--
Cattle		38	155	40
Hogs		531	463	624
Sheep		7	8	1
Poultry		76	74	67
Egg sales		200	163	190
Dairy sales		2 216	3 070	1 593
Feed, grain and supplies		--	--	--
Labor off farm		27	26	26
Miscellaneous receipts		11	14	20
Total receipts & net increases	$	$3 106	$ 3 973	$ 2 561
EXPENSES AND NET DECREASES				
Farm improvements		258	257	275
Horses		37	34	56
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		528	597	481
Feed, grain and supplies		449	218	809
Livestock expense		72	77	70
Crop expense		201	200	224
Hired labor		393	355	531
Taxes		336	316	389
Miscellaneous expenses		33	40	28
Total expenses & net decreases	$	$2 307	$2 094	$2 863
RECEIPTS LESS EXPENSES	$	$ 799	$1 879	$ -302
Total unpaid labor		812	854	785
Operator's labor		574	600	542
Family labor		238	254	243
Net income from investment and management		-13	1 025	-1 087
RATE EARNED ON INVESTMENT	%	-.04 %	3.05 %	-2.85%
Return to capital and operator's labor and management		561	1 625	-545
5% of capital invested		1 797	1 683	1 904
LABOR AND MANAGEMENT WAGE	$	$-1 236	$ -58	$-2 449

Chart for Studying the Efficiency of Various Parts of Your Business
Kendall, DuPage, Cook, Kane, McHenry, and Lake Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 54 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

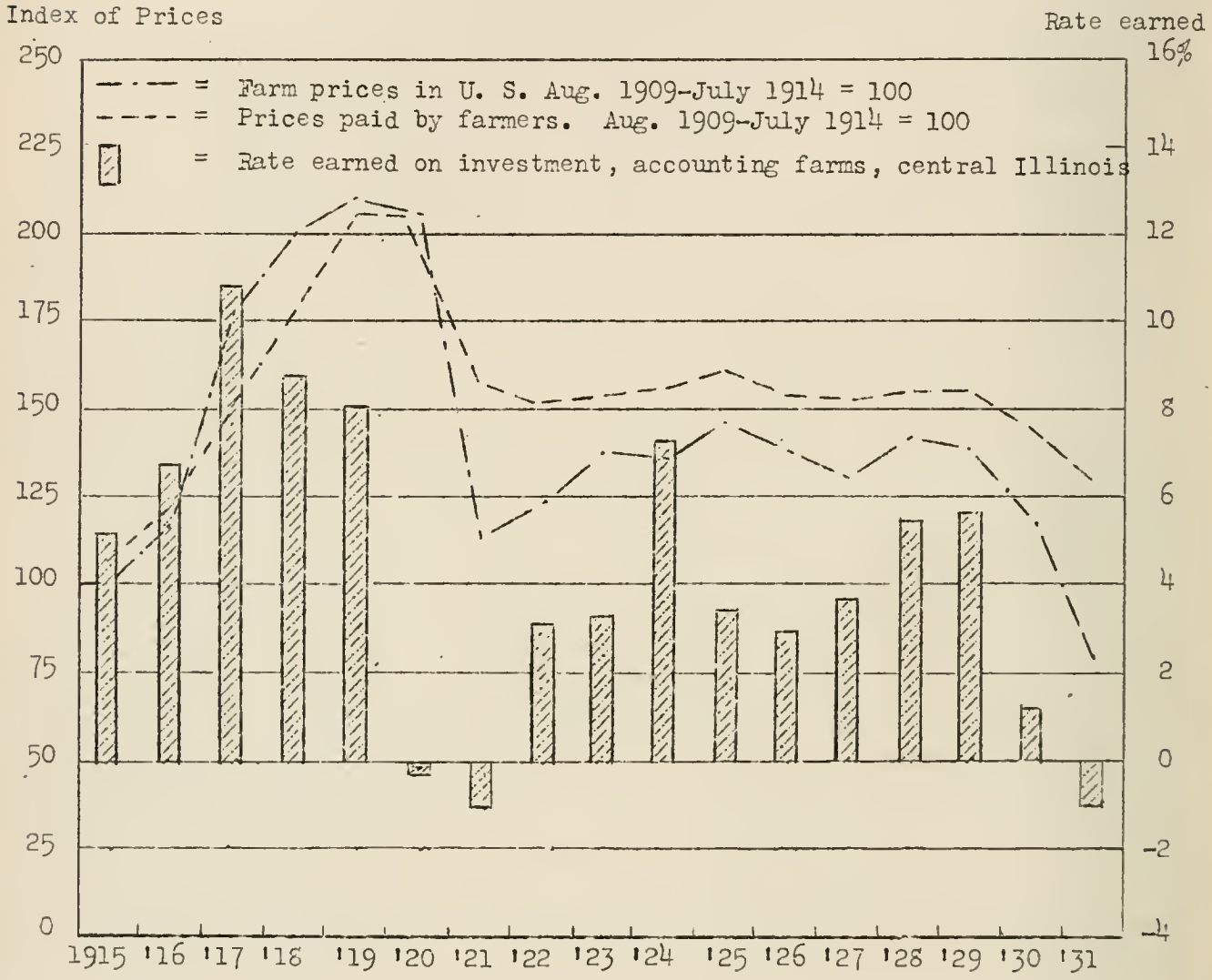
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Barley	Cattle	Poultry										
7.0	57	55	48	130	250	85	215	165	30	2.10	12	30	31	5 900	325
6.0	55	53	46	125	240	80	205	160	28	2.60	16	40	29	5 500	305
5.0	53	51	44	120	230	75	195	155	26	3.10	20	50	27	5 100	285
4.0	51	49	42	115	220	70	185	150	24	3.60	24	60	25	4 700	265
3.0	49	47	40	110	210	65	175	145	22	4.10	28	70	23	4 300	245
2.0	47	45	38	105	200	60	165	140	20	4.60	32	80	21	3 900	225
1.0	45	43	36	100	190	55	155	135	18	5.10	36	90	19	3 500	205
.0	43	41	34	95	180	50	145	130	16	5.60	40	100	17	3 100	185
-1.0	41	39	32	90	170	45	135	125	14	6.10	44	110	15	2 700	165
-2.0	39	37	30	85	160	40	125	120	12	6.60	48	120	13	2 300	145
-3.0	37	35	28	80	150	35	115	115	10	7.10	52	130	11	1 900	125
-4.0	35	33	26	75	140	30	105	110	8	7.60	56	140	9	1 500	105
-5.0	33	31	24	70	130	25	95	105	6	8.10	60	150	7	1 100	85
-6.0	31	29	22	65	120	20	85	100	4	8.60	64	160	5	700	65
-7.0	29	27	20	60	110	15	75	95	2	9.10	68	170	3	300	45

Factors Helping to Analyze the Farm Business on 54
Kendall, DuPage, Cook, Kane, McHenry, and Lake County Farms in 1931

Items	Your farm	Average of 54 farms	18 most profitable farms	18 least profitable farms
Size of farm--acres	_____	186.7	161.0	223.5
Percent of land area tillable		84.3	91.7	75.1
Gross receipts per acre	_____	16.64	24.68	11.46
Total expenses per acre		16.71	18.31	16.32
Net receipts per acre		- .07	6.37	-4.86
Value of land per acre		121	125	108
Total investment per acre		193	209	170
Acres in Corn	_____	62.1	58.4	65.9
Oats	_____	33.5	22.4	42.5
Barley	_____	16.6	16.5	18.0
Crop yields--Corn, bu. per acre	_____	42.6	47.2	42.6
Oats, bu. per acre	_____	40.6	37.8	38.1
Barley, bu. per acre	_____	34.1	38.0	31.6
Value of feed fed to productive livestock	_____	2 122	2 205	2 222
Returns per $100 of feed fed to productive livestock	_____	145	178	113
Returns per $100 invested in:				
Cattle	_____	96	115	67
Poultry	_____	180	144	171
Pigs weaned per litter	_____	6.0	6.4	6.2
Income per litter farrowed	_____	49	57	43
Dairy sales per dairy cow	_____	131	152	106
Investment in productive livestock per acre	_____	15.78	20.40	14.20
Receipts from productive livestock per acre	_____	16.43	24.43	11.25
Power and machinery cost per crop acre	_____	5.58	6.87	4.87
Machinery cost per crop acre	_____	3.80	4.86	3.09
Value of feed fed to horses	_____	210	213	221
Man labor cost per $100 gross income	_____	38	30	50
Man labor cost per acre	_____	6.31	7.35	5.77
Expenses per $100 gross income	_____	100	74	142
Farm improvements cost per acre	_____	1.38	1.60	1.23
Farms with tractor	_____	83%	83%	83%
Excess of sales over cash expenses	_____	1 873	2 307	1 567
Decrease in inventory	_____	1 074	428	1 869

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON FIFTY FARMS IN DEKALB COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. E. Wills and H. C. M. Case*

The average of farm earnings, on account keeping farms in DeKalb County, was lower in 1931 than in 1930. In 1930 the average net income was $1338 per farm while in 1931 there was an average loss of $504 per farm. In 1930, however, $1008 per farm was deducted for the labor of the operator and the family as compared with $851 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $3254 in excess of cash expenses as compared with $2032 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*R. N. Rasmusen, farm adviser in DeKalb County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the DeKalb County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$4 104	$3 187
Feed, grain and supplies	2 468	1 810
Machinery	1 991	1 883
Improvements	6 755	6 753
Total inventory	$15 318	$13 633
Decrease in inventory		$1 685

Total cash sales for 1931	$5 248
Total cash purchases for 1931	3 216
Excess of cash sales over cash purchases	2 032
Decrease in inventory	1 685
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	347

There was a sharp decrease in inventory values during 1931 for both the livestock and grain accounts. This was due to a decline in value rather than in volume of farm products on hand at the end of the year.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost of a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in DeKalb County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 50 farms included in this study ranged in size from 80 to 524 acres per farm. Only 2 were smaller than 100 acres and only 6 were larger than 300 acres. The average size for all farms in the group was 202 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	300 - 339	2
100 - 139	8	340 - 379	0
140 - 179	17	380 - 419	1
180 - 219	10	420 - 459	1
220 - 259	4	460 - 499	1
260 - 299	3	500 - 539	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 50 farms included in the present study, the value of bare land per acre was $70 to $109 per acre on 22 farms; $110 to $149 on 21 farms, and $150 to $189 on 7 farms. The average value was $119 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $195 per acre.

As previously stated, the average for all farms indicated a loss of $504 per farm after deducting $851 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1891 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the 50 farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Twelve of the farms netted their operators incomes of more than $249; while the operators of 9 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	1	$ -750 to -1 249	11
1 249 to 750	1	-1 250 to -1 749	4
749 to 250	10	-1 750 to -2 249	4
249 to -249	8	-2 250 to -2 749	0
-250 to -749	10	-2 750 to -3 249	1

A comparison of the 17 farms having the highest rate earned on investment with the 17 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 180 acres in size as compared with 189 for the less profitable group. The percentage of the land area tillable and the value per acre for the bare land were the same for both groups. The cropping system was practically the same for the two groups, and there was but little difference in the crop yields. The most profitable farms grew 2.6 bushels more corn, 2.3 bushels less oats, and 1.9 bushels more barley per acre than did the least profitable farms.

The investment per farm in livestock was $757 less on the most profitable farms than on the least profitable but the income was $869 per farm higher while at the same time the decrease from the feed and grain account was smaller by $611. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $133 for the more profitable farms as compared with $82 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 6.1 pigs weaned per litter on the more profitable farms but only 5.9 on the less profitable farms. Dairy sales were $19 per cow higher and returns per $100 invested in poultry $77 higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $15.76 as compared with $10.56 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $13.54 as compared with $17.72 for the least profitable group. The cost of power and machinery was 19 cents per crop acre lower for the more successful farms, and the man labor cost was 45 cents an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $865 per farm in the feed and grain account, whereas the more profitable farms had a loss of $254.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.22 per acre for the more profitable farms as compared with a loss of $7.16 per acre for the less profitable group. For the first group this was a return of 1.16% on the capital invested in the business and for the second group a loss of 3.61%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the feed, machinery, labor, and improvements accounts.

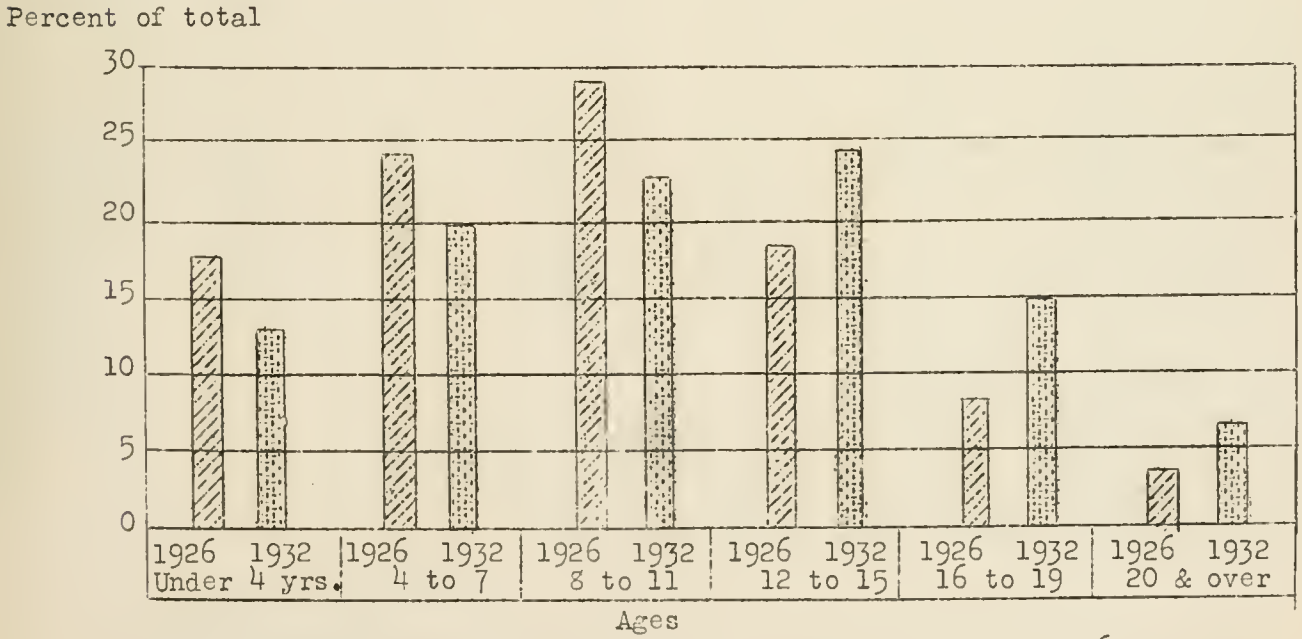
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in DeKalb County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $12 per acre higher in 1930 than in 1931. The gross income per acre was smaller while the expense per acre was larger in 1931 than in 1930. The larger expense in 1931 was due to the decrease of $481 per farm in the feed and grain account.

Comparison of Earnings and Investments on Accounting Farms in DeKalb County for 1927-1931

Items	1927[1]	1928[2]	1929	1930	1931
Number of farms	38	40	35	45	50
Average size of farms, acres	220	210	215	220	202
Average rate earned, to pay for management, risk and capital	4.0%	5.7%	6.4%	2.8%	-1.3%
Average labor and management wage	$248	$988	$1357	$-341	$-1891
Gross income per acre	22.71	25.03	28.66	20.77	12.49
Operating cost per acre	14.62	14.28	14.56	14.68	14.99
Average value of land per acre	125	116	133	131	119
Total investment per acre	201	188	221	217	195
Investment per farm in:					
Total livestock	4903	4141	5367	5395	4104
Cattle	2422	2487	3048	3076	2109
Hogs	1540	929	1207	1263	1172
Poultry	168	182	214	187	181
Gross income per farm	4995	5272	6162	4562	2522
Income per farm from:					
Crops	---	487	585	41	---
Miscellaneous income	72	93	65	57	46
Total livestock	4923	4692	5512	4464	2476
Cattle	1569	1371	1830	1132	461
Dairy sales	1079	1584	1099	963	824
Hogs	1831	1236	1972	2028	898
Poultry	278	395	379	293	253
Average yield of corn in bu.	36	44	46	44	47
Average yield of oats in bu.	30	50	46	56	50

1/ Some records from Boone, Ogle, and Lee counties included for 1927.

2/ Some records for Boone county included for 1928.

Investments, Receipts, Expenses, and Earnings on
50 DeKalb County Farms, 1931

Items	Your farm	Average of 50 farms	17 most profitable farms	17 least profitable farms
CAPITAL INVESTMENTS				
Land		23 952	21 022	22 062
Farm improvements		6 755	5 941	6 524
Livestock total		4 104	3 607	4 364
Horses		457	431	446
Cattle		2 109	1 751	2 446
Hogs		1 172	1 090	1 075
Sheep		185	144	199
Poultry		181	191	198
Machinery and equipment		1 991	1 716	2 027
Feed, grain and supplies		2 468	2 248	2 489
Total capital investment	$	$39 270	$34 534	$37 466
RECEIPTS AND NET INCREASES				
Livestock total		2 476	2 799	1 930
Horses		---	---	---
Cattle		461	301	362
Hogs		898	975	619
Sheep		40	82	17
Poultry		66	98	44
Egg sales		187	286	167
Dairy sales		824	1 057	721
Feed, grain and supplies		---	---	---
Labor off farm		45	34	60
Miscellaneous receipts		1	2	1
Total receipts & net increases	$	$ 2 522	$ 2 835	$ 1 991
EXPENSES AND NET DECREASES				
Farm improvements		259	199	243
Horses		40	35	44
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		454	400	423
Feed, grain and supplies		481	254	865
Livestock expense		75	47	90
Crop expense		187	161	177
Hired labor		295	159	220
Taxes		359	321	324
Miscellaneous expenses		25	26	25
Total expenses & net decreases	$	$ 2 175	$ 1 602	$ 2 411
RECEIPTS LESS EXPENSES	$	$ 347	$ 1 233	$ -420
Total unpaid labor		851	834	931
Operator's labor		577	594	582
Family labor		274	240	349
Net income from investment and management		-504	399	-1 351
RATE EARNED ON INVESTMENT	%	-1.28%	1.16%	-3.61%
Return to capital and operator's labor and management		73	993	-769
5% of capital invested		1 964	1 727	1 873
LABOR AND MANAGEMENT WAGE	$	$-1 891	$ -734	$-2 642

Chart for Studying the Efficiency of Various Parts of Your Business
DeKalb County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 50 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

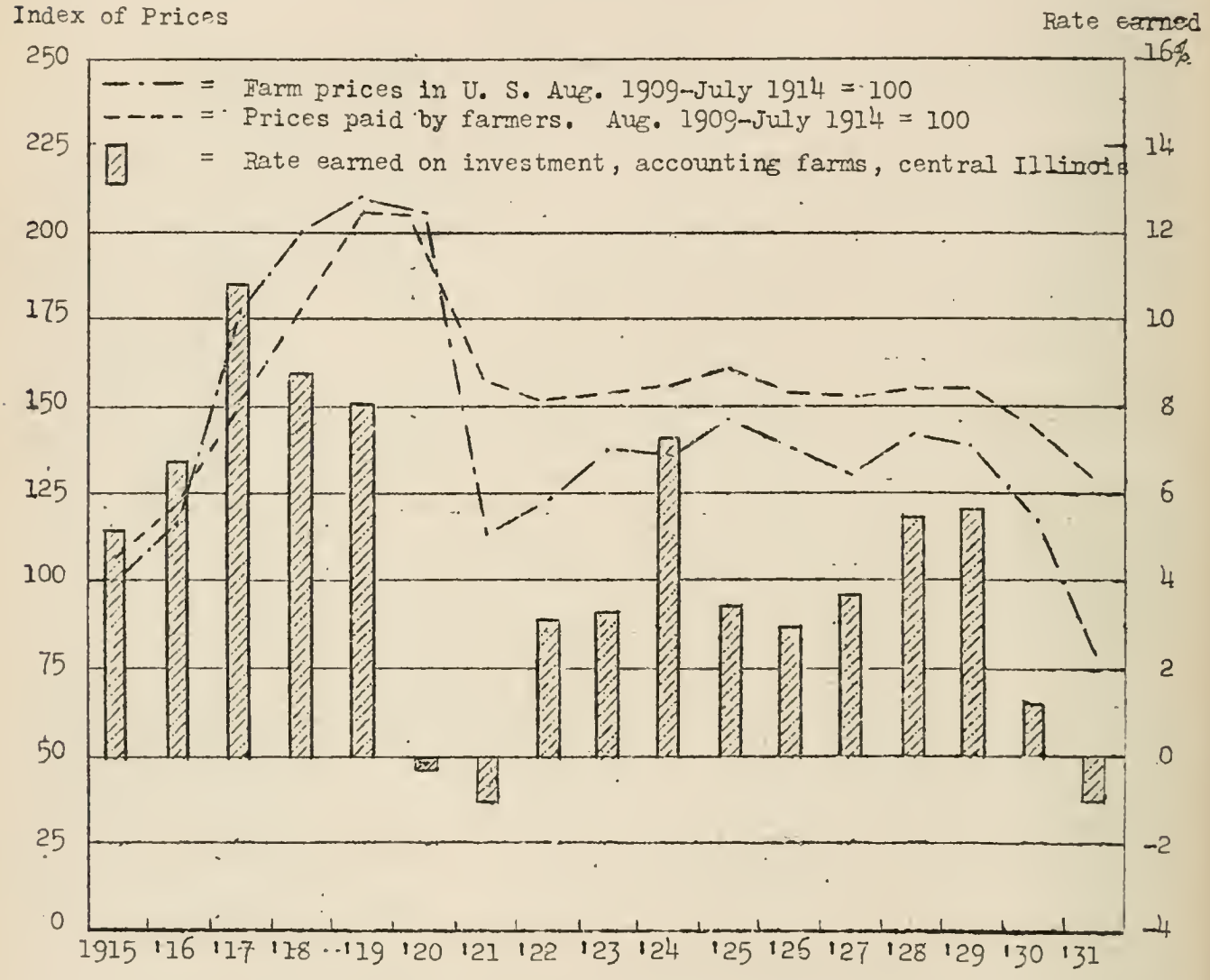
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Barley	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.7	61	64	50	135	285	80	175	140	30	.70	10	50	26	6 000	340
4.7	59	62	48	125	265	75	165	135	28	1.20	15	60	24	5 500	320
3.7	57	60	46	115	245	70	155	130	26	1.70	20	70	22	5 000	300
2.7	55	58	44	105	225	65	145	125	24	2.20	25	80	20	4 500	280
1.7	53	56	42	95	205	60	135	120	22	2.70	30	90	18	4 000	260
0.7	51	54	40	85	185	55	125	115	20	3.20	35	100	16	3 500	240
-0.3	49	52	38	75	165	50	115	110	18	3.70	40	110	14	3 000	220
-1.3	47	50	36	65	145	45	105	105	16	4.20	45	120	12	2 500	200
-2.3	45	48	34	55	125	40	95	100	14	4.70	50	130	10	2 000	180
-3.3	43	46	32	45	105	35	85	95	12	5.20	55	140	8	1 500	160
-4.3	41	44	30	35	85	30	75	90	10	5.70	60	150	6	1 000	140
-5.3	39	42	28	25	65	25	65	85	8	6.20	65	160	4	500	120
-6.3	37	40	26	15	45	20	55	80	6	6.70	70	170	2	0	100
-7.3	35	38	24	5	25	15	45	75	4	7.20	75	180	0	---	80
-8.3	33	36	22	--	5	10	35	70	2	7.70	80	190	--	---	60

Factors Helping to Analyze the Farm Business on
50 DeKalb County Farms in 1931

Items	Your farm	Average of 50 farms	17 most profitable farms	17 least profitable farms
Size of farm--acres	2	201.9	179.9	188.6
Percent of land area tillable		90.1	92.7	92.5
Gross receipts per acre		12.49	15.76	10.56
Total expenses per acre		14.99	13.54	17.72
Net receipts per acre		-2.50	2.22	-7.16
Value of land per acre		119	117	117
Total investment per acre		195	192	199
Acres in Corn		81.0	75.9	77.9
Oats		33.7	26.7	33.8
Wheat		3.9	5.1	2.5
Barley		15.9	15.1	14.7
Crop yields--Corn,bu. per acre		46.6	46.1	43.5
Oats,bu. per acre		50.1	47.5	49.8
Barley,bu. per acre		36.4	33.6	31.7
Value of feed fed to productive livestock		2 355	2 097	2 367
Returns per $100 of feed fed to productive livestock		105	133	82
Returns per $100 invested in:				
Cattle		66	83	50
Poultry		146	197	120
Pigs weaned per litter		5.9	6.1	5.9
Income per litter farrowed		44	45	37
Dairy sales per dairy cow		106	115	96
Investment in productive livestock per acre		15.94	16.01	17.82
Receipts from productive livestock per acre		12.26	15.56	10.23
Power and machinery cost per crop acre		4.19	4.05	4.24
Machinery cost per crop acre		2.78	2.73	2.69
Value of feed fed to horses		190	159	201
Man labor cost per $100 gross income		44	34	55
Man labor cost per acre		5.45	5.33	5.78
Expenses per $100 gross income		120	86	168
Farm improvements cost per acre		1.28	1.11	1.29
Farms with tractor		80%	71%	88%
Excess of sales over cash expenses		2 032	2 499	1 746
Decrease in inventory		1 685	1 266	2 166

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN BOONE COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. E. Wills, and H. C. M. Case*

The average of farm earnings on account-keeping farms in Boone County, was lower in 1931 than in 1930. In 1930 the average net income was $1649 per farm while in 1931 there was an average loss of $270 per farm. In 1930, however, $1025 per farm was deducted for the labor of the operator and the family as compared with $823 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2621 in excess of cash expenses as compared with $2170 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*E. C. Foley, farm adviser in Boone County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Boone County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$4 000	$3 219	
Feed, grain and supplies	2 376	1 764	
Machinery	1 843	1 682	
Improvements	6 790	6 727	
Total inventory	$15 009	$13 392	
Decrease in inventory			-$1 617
Total cash sales for 1931			-$4 845
Total cash purchases for 1931			- 2 675
Excess of cash sales over cash purchases			- 2 170
Decrease in inventory			- 1 617
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			553

The decrease in the grain account was due to a decrease in the amount of grain on hand as well as the decline in price. Crop yields in this area were better in 1930 than in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family received foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Boone County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 80 to 350 acres per farm. Three were smaller than 100 acres and 3 were larger than 300 acres. The average size for all farms in the group was 203 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	3	220 - 259	6
100 - 139	6	260 - 299	6
140 - 179	3	300 - 339	2
180 - 219	3	340 - 379	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $40 to $69 on 5 farms; $70 to $109 on 22 farms, and $110 to $129 on 3 farms. The average value was $87 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $161 per acre.

As previously stated, the average for all farms indicated a loss of $270 per farm after deducting $823 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1349 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings From Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Ten of the farms netted their operators incomes of more than $249, while the operators of 7 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms 1/	Net income per farm	Number of farms
$1 249 to 750	4	- 750 to -1 249	3
749 to 250	5	-1 250 to -1 749	5
249 to -249	3	-1 750 to -2 249	2
-250 to -749	7		

1/One farm had an income of $2374

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 206 acres in size as compared with 187 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 4.1 bushels more corn, 4.2 bushels more oats, and 1.9 bushels more barley per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $281 per farm less than the beginning inventory, while on the less profitable farms it was $795 less than the beginning inventory.

The investment per farm in livestock was $164 less on the most profitable farms than on the least profitable yet the income was $1991 per farm higher while at the same time the decrease from the feed and grain account was smaller by $516. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $185 for the more profitable farms as compared with $84 for the less profitable farms. There were 6.4 pigs weaned per litter on the more profitable farms but only 6.0 on the less profitable farms. Dairy sales were $55 per cow higher and returns per $100 invested in poultry $66 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $21.64 as compared with $13.10 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $17.14 as compared with $20.66 for the least profitable group. The cost of power and machinery was $1.16 per crop acre lower for the more successful farms, but the man labor cost was 56 cents an acre higher. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $1082 per farm in the feed and grain account, as compared with a loss of $566 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $4.50 per acre for the more profitable farms as compared with a loss of $7.56 per acre for the less profitable group. For the first group this was a return of 2.71% on the capital invested in the business and for the second group a loss of 4.84%. The higher income per acre on the more profitable farms was due to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed and improvements accounts. The decrease in inventory was over $2000 per farm more on the low profit farms than on the high profit farms.

The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

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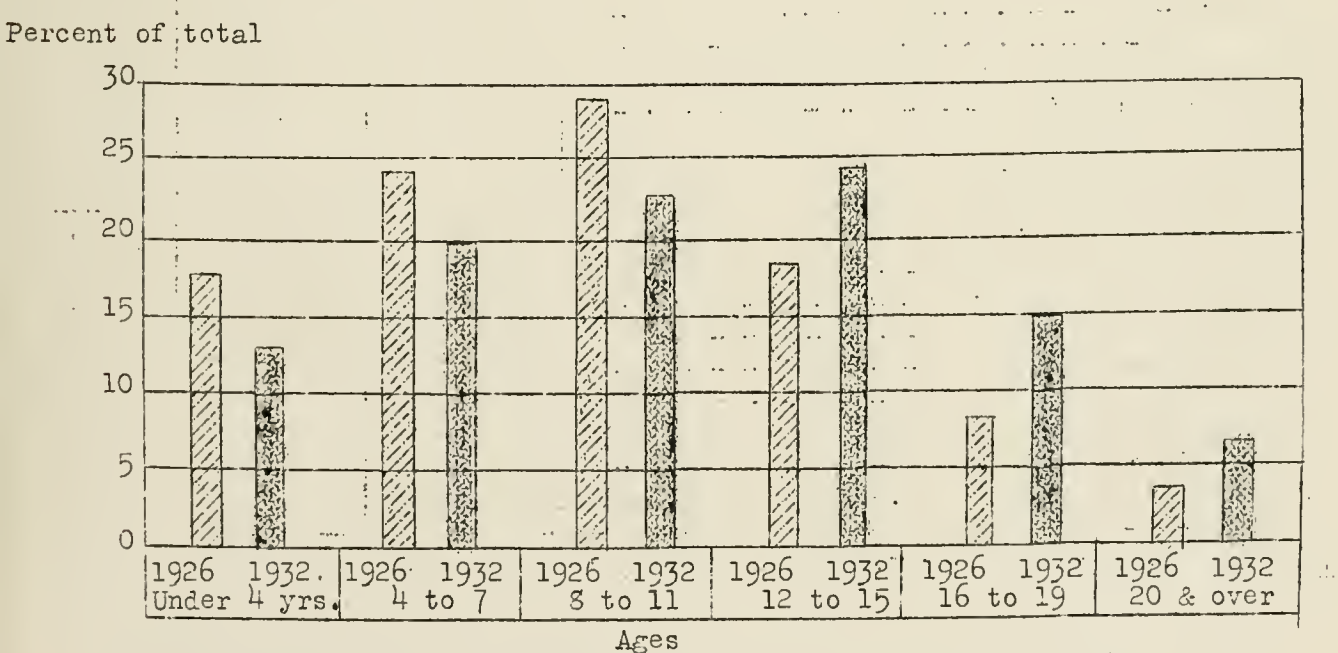


Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Three-Year Period

Some comparative investment and earning data on accounting farms in Boone County for 1929 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $12 per acre higher in 1930. The gross income per acre was low in 1931 because of the low price level and the operating expense per acre was high because of the decrease in the feed and grain account of $681 per farm.

Comparison of Earnings and Investments on Accounting Farms in Boone County for 1929-1931

Items	1929[1]	1930	1931
Number of farms	51	31	30
Average size of farms, acres	194	206	203
Average rate earned, to pay for management, risk and capital	6.3%	4.6%	-.83%
Average labor and management wage	$1 146	$571	$-1 349
Gross income per acre	28.20	22.01	15.16
Operating cost per acre	17.08	14.01	16.49
Average value of land per acre	103	99	87
Total investment per acre	178	173	161
Investment per farm in:			
Total livestock	4 525	4 583	4 000
Cattle	3 261	3 059	2 611
Hogs	518	727	605
Poultry	149	159	138
Gross income per farm	5 472	4 537	3 078
Income per farm from:			
Crops	---	548	---
Miscellaneous income	56	42	28
Total livestock	5 416	3 947	3 050
Cattle	1 009	313	---
Dairy sales	2 866	2 231	2 022
Hogs	994	965	667
Poultry	375	316	295
Average yield of corn in bu.	38	45	44
Average yield of oats in bu.	30	50	32

1/Records from McHenry and Winnebago Counties included for 1929.

Investments, Receipts, Expenses, and Earnings on 30 Boone County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		17 681	18 173	14 722
Farm improvements		6 790	7 675	6 097
Livestock total		4 000	4 087	4 251
Horses		428	457	371
Cattle		2 611	2 888	2 721
Hogs		605	358	920
Sheep		218	266	89
Poultry		138	118	150
Machinery and equipment		1 843	1 860	1 985
Feed, grain and supplies		2 376	2 420	2 126
Total capital investment	$	$32 690	$34 215	$29 181
RECEIPTS AND NET INCREASES				
Livestock total		3 050	4 420	2 429
Horses		---	---	---
Cattle		---	---	---
Hogs		667	570	1 029
Sheep		66	66	59
Poultry		97	132	91
Egg sales		198	178	144
Dairy sales		2 022	3 474	1 106
Feed, grain and supplies		---	---	---
Labor off farm		20	13	20
Miscellaneous receipts		8	23	1
Total receipts & net increases	$	$ 3 078	$ 4 456	$ 2 450
EXPENSES AND NET DECREASES				
Farm improvements		293	260	338
Horses		18	27	33
Miscellaneous livestock decreases Cattle		163	230	254
Machinery and equipment		500	536	582
Feed, grain and supplies		681	566	1 082
Livestock expense		65	81	70
Crop expense		196	249	152
Hired labor		295	432	234
Taxes		285	288	274
Miscellaneous expenses		29	32	31
Total expenses & net decreases	$	$ 2 525	$ 2 701	$ 3 050
RECEIPTS LESS EXPENSES	$	$ 553	$ 1 755	$ -600
Total unpaid labor		823	828	814
Operator's labor		555	540	580
Family labor		268	288	234
Net income from investment and management		-270	927	-1 414
RATE EARNED ON INVESTMENT	%	-.83%	2.71%	-4.85%
Return to capital and operator's labor and management		285	1 467	-834
5% of capital invested		1 634	1 711	1 459
LABOR AND MANAGEMENT WAGE	$	$-1 349	$ -244	$-2 293

Chart for Studying the Efficiency of Various Parts of Your Business
Boone County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

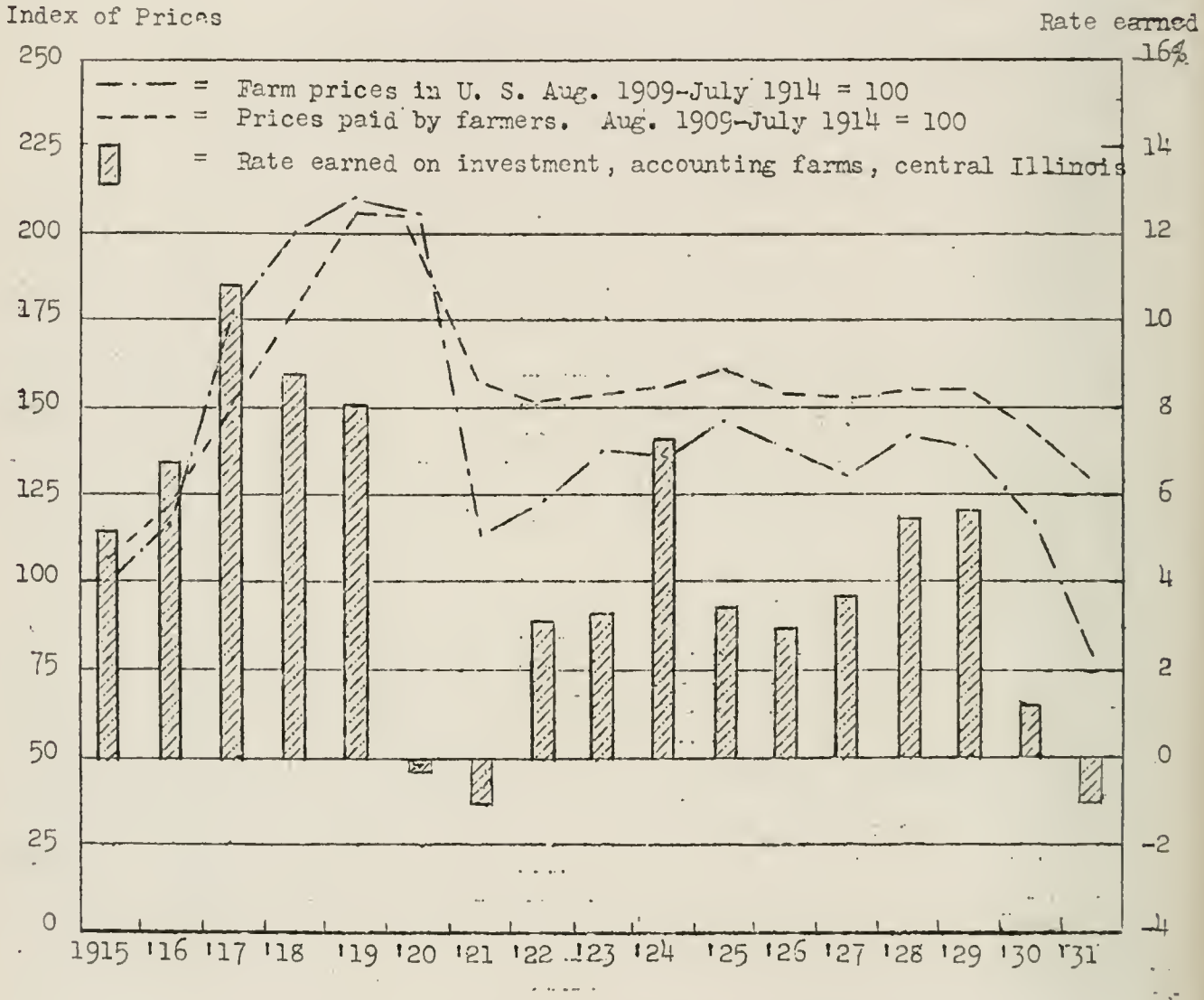
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Barley	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
6.2	58	46	44	115	275	95	195	155	23	1.70	0	75	22	5 900	340
5.2	56	44	42	110	265	90	185	150	22	2.20	5	80	21	5 500	320
4.2	54	42	40	105	255	85	175	145	21	2.70	10	85	20	5 100	300
3.2	52	40	38	100	245	80	165	140	20	3.20	15	90	19	4 700	280
2.2	50	38	36	95	235	75	155	135	19	3.70	20	95	18	4 300	260
1.2	48	36	34	90	225	70	145	130	18	4.20	25	100	17	3 900	240
.2	46	34	32	85	215	65	135	125	17	4.70	30	105	16	3 500	220
-.8	44	32	30	80	205	60	125	120	16	5.20	35	110	15	3 100	200
-1.8	42	30	28	75	195	55	115	115	15	5.70	40	115	14	2 700	180
-2.8	40	28	26	70	185	50	105	110	14	6.20	45	120	13	2 300	160
-3.8	38	26	24	65	175	45	95	105	13	6.70	50	125	12	1 900	140
-4.8	36	24	22	60	165	40	85	100	12	7.20	55	130	11	1 500	120
-5.8	34	22	20	55	155	35	75	95	11	7.70	60	135	10	1 100	100
-6.8	32	20	18	50	145	30	65	90	10	8.20	65	140	9	700	80
-7.8	30	18	16	45	135	25	55	85	9	8.70	70	145	8	300	60

Factors Helping to Analyze the Farm Business on
30 Boone County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	____	203.0	205.9	187.0
Percent of land area tillable		83.0	81.4	79.4
Gross receipts per acre	____	15.16	21.64	13.10
Total expenses per acre		16.49	17.14	20.66
Net receipts per acre		-1.33	4.50	-7.56
Value of land per acre		87	88	79
Total investment per acre		161	166	156
Acres in Corn	____	59.4	59.8	53.2
Oats	____	25.1	26.2	20.3
Barley	____	24.2	25.2	19.7
Crop yields--Corn, bu. per acre	____	43.8	46.4	42.3
Oats, bu. per acre	____	31.6	34.9	30.7
Barley, bu. per acre	____	30.0	32.3	30.4
Value of feed fed to productive livestock	____	2 320	2 270	2 598
Returns per $100 of feed fed to productive livestock	____	124	185	84
Returns per $100 invested in:				
Cattle	____	79	120	39
Poultry	____	207	224	158
Pigs weaned per litter	____	5.8	6.4	6.0
Income per litter farrowed	____	59	59	84
Dairy sales per dairy cow	____	119	144	89
Investment in productive livestock per acre	____	15.72	16.90	16.69
Receipts from productive livestock per acre	____	14.22	20.35	11.63
Power and machinery cost per crop acre	____	5.21	5.61	6.77
Machinery cost per crop acre	____	3.52	3.64	4.81
Value of feed fed to horses	____	222	263	204
Man labor cost per $100 gross income	____	36	28	42
Man labor cost per acre	____	5.41	6.06	5.50
Expenses per $100 gross income	____	109	79	158
Farm improvements cost per acre	____	1.44	1.26	1.81
Farms with tractor	____	93%	90%	90%
Excess of sales over cash expenses	____	2 170	2 496	2 159
Decrease in inventory	____	1 617	741	2 759

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-EIGHT FARMS IN WINNEBAGO AND STEPHENSON COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, J. W. Reitz, and H. C. M. Case*

The average of farm earnings on account keeping farms in Winnebago and Stephenson counties was lower in 1931 than in 1930. In 1930 the average net income was $1074 per farm while in 1931 there was an average loss of $696 per farm. In 1930, however, $903 per farm was deducted for the labor of the operator and the family as compared with $757 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2588 in excess of cash expenses as compared with $2017 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*C. H. Keltner and V. J. Banter, farm advisers in Winnebago and Stephenson counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 38 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$3 999	$2 995
Feed, grain and supplies	2 110	1 402
Machinery	1 913	1 785
Improvements	6 146	6 030
Total inventory	$14 168	$12 212
Decrease in inventory	$1 956	

Total cash sales for 1931	$4 510
Total cash purchases for 1931	2 493
Excess of cash sales over cash purchases	2 017
Decrease in inventory	1 956
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	61

The decrease in the grain account was due to a decline in the amount of grain on hand as well as the decline in price. Crop yields in this area were better in 1930 than in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Winnebago and Stephenson counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 38 farms included in this study ranged in size from 80 to 484 acres per farm. Three were smaller than 100 acres and 4 were larger than 300 acres. The average size for all farms in the group was 190 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	3	300 - 339	2
100 - 139	7	340 - 379	1
140 - 179	9	380 - 419	0
180 - 219	5	420 - 459	0
220 - 259	8	460 - 499	1
260 - 299	2		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 38 farms included in the present study, the value of bare land per acre was $50 to $89 on 13 farms; $90 to $129 on 22 farms, and $130 to $169 on 3 farms. The average value was $90 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $164 per acre.

As previously stated, the average for all farms indicated a loss of $696 per farm after deducting $757 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1676 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Seven of the farms netted their operators incomes of more than $249, while the operators of 10 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms[1]
$2 249 to 1 750	1	$ -250 to -749	10
1 749 to 1 250	1	-750 to -1 249	8
1 249 to 750	1	-1 250 to -1 749	5
749 to 250	4	1 750 to -2 249	4
249 to -249	3		

[1] One farm had a loss of $3533

A comparison of the 13 farms having the highest rate earned on investment with the 13 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 182 acres in size as compared with 186 for the less profitable group. The smaller farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, and there was but little difference in the crop yields. The most profitable farms grew .8 bushels less corn, .8 bushels more oats, and 2.9 bushels less barley per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $462 per farm less than the beginning inventory, while on the less profitable farms it was $1013 less than the beginning inventory.

The investment per farm in livestock was $243 more on the most profitable farms than on the least profitable and the income was $1304 per farm higher while at the same time the decrease from the feed and grain account was smaller by $484. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $129 for the more profitable farms as compared with $75 for the less profitable farms. Dairy sales were $24 per cow higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $17.75 as compared with $9.92 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $15.85 as compared with $18.28 for the least profitable group. The cost of power and machinery was $1.01 per crop acre lower for the most successful farms, but the man labor cost was $.63 an acre higher. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $1174 per farm in the feed and grain account, as compared with a loss of $690 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.90 per acre for the more profitable farms as compared with a loss of $8.36 per acre for the less profitable group. For the first group this was a return of 1.05% on the capital invested in the business and for the second group a loss of 5.15%. The higher income per acre on the more profitable farms was due to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed and improvements accounts. The decrease in inventory value was over $1000 larger on the less profitable farms than on the more profitable farms.

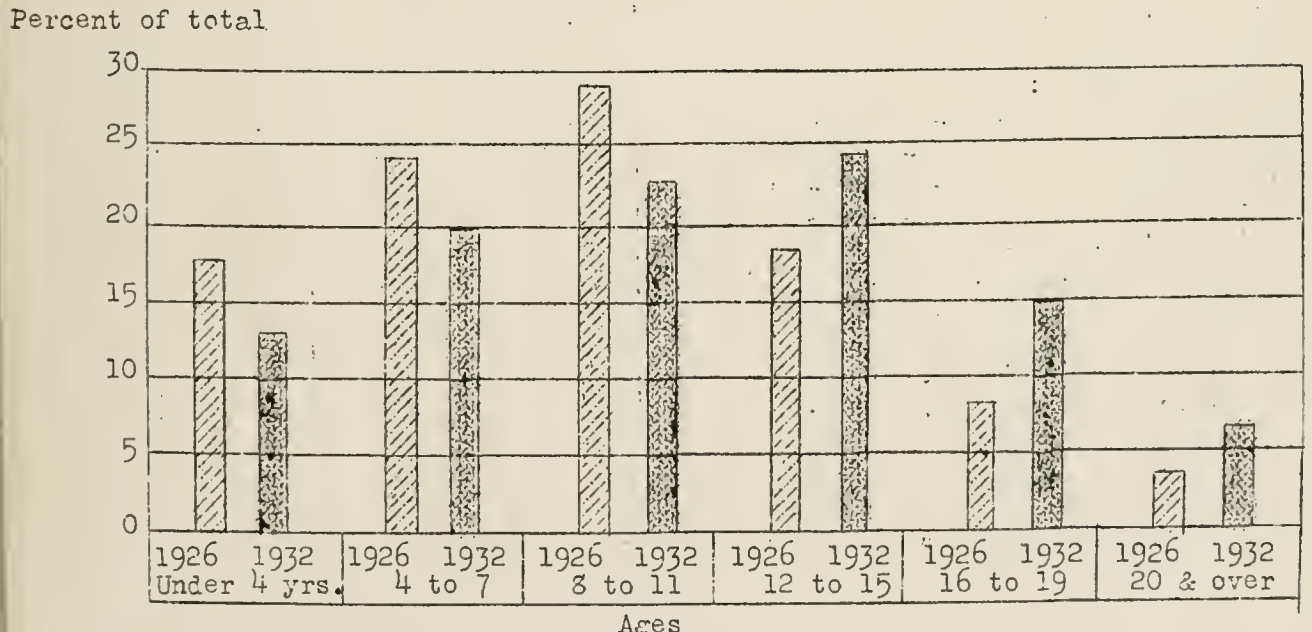
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Winnebago and Stephenson counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $23 per acre higher in 1930. The gross income was about $5.00 per acre lower in 1931 than in 1930 but the operating cost was almost $4.00 per acre higher due to larger decrease in the feed and grain account.

Comparison of Earnings and Investments on Accounting Farms in Winnebago and Stephenson County for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930[2]	1931
Number of farms	30	32	30	55	38
Average size of farms, acres	156	152	157	206	190
Average rate earned, to pay for management, risk, and capital	3.5%	6.9%	7.0%	2.0%	-2.2%
Average labor and management wage	$250	$1267	$1332	$-72	$-1676
Gross income per acre	23.82	28.44	33.03	18.15	13.11
Operating cost per acre	16.99	15.28	19.19	12.94	16.76
Average value of land per acre	121	112	112	113	90
Total investment per acre	195	191	199	183	164
Investment per farm in:					
Total livestock	3527	3730	3977	4293	3999
Cattle	1729	2178	2366	2652	2454
Hogs	1042	829	975	812	927
Poultry	159	194	193	173	155
Gross income per farm	3713	4329	5186	3740	2497
Income per farm from:					
Crops	--	--	--	--	--
Miscellaneous income	57	52	60	64	51
Total livestock	3656	4277	5126	3676	2446
Cattle	718	879	883	691	215
Dairy sales	1288	1422	1747	1158	1048
Hogs	1295	1563	2034	1548	952
Poultry	286	358	411	239	221
Average yield of corn in bu.	35	52	45	41	42
Average yield of oats in bu.	34	52	38	49	23

1/ Records from Stephenson county only for 1927, 1928, and 1929

2/ Records from Stephenson, Ogle, and Lee counties for 1930

Investments, Receipts, Expenses, and Earnings on 38 Winnebago and Stephenson County Farms, 1931

Items	Your farm	Average of 38 farms	13 most profitable farms	13 least profitable farms
CAPITAL INVESTMENTS				
Land		17 110	18 853	15 542
Farm improvements		6 146	6 218	6 718
Livestock total		3 999	3 934	3 691
Horses		396	316	425
Cattle		2 454	2 640	2 129
Hogs		927	696	901
Sheep		67	62	103
Poultry		155	220	133
Machinery and equipment		1 913	2 072	1 945
Feed, grain and supplies		2 110	1 780	2 306
Total capital investment	$	$31 278	$32 857	$30 202
RECEIPTS AND NET INCREASES				
Livestock total		2 446	3 139	1 835
Horses		--	--	--
Cattle		215	512	119
Hogs		952	806	882
Sheep		10	16	5
Poultry		63	71	57
Egg sales		158	224	133
Dairy sales		1 048	1 510	639
Feed, grain and supplies		--	--	--
Labor off farm		41	67	8
Miscellaneous receipts		10	28	1
Total receipts & net increases	$	$ 2 497	$3 234	$1 844
EXPENSES AND NET DECREASES				
Farm improvements		267	253	266
Horses		23	9	22
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		401	345	451
Feed, grain and supplies		922	690	1 174
Livestock expense		63	50	65
Crop expense		171	162	175
Hired labor		276	219	244
Taxes		280	282	275
Miscellaneous expenses		33	33	34
Total expenses & net decreases	$	$ 2 436	$ 2 043	$ 2 706
RECEIPTS LESS EXPENSES	$	$ 61	$ 1 191	$ - 862
Total unpaid labor		757	845	692
Operator's labor		584	600	600
Family labor		173	245	92
Net income from investment and management		-696	346	-1 554
RATE EARNED ON INVESTMENT	%	-2.23 %	1.05 %	-5.15 %
Return to capital and operator's labor and management		-112	946	-954
5% of capital invested		1 564	1 643	1 510
LABOR AND MANAGEMENT WAGE	$	$-1 676	$ -697	$-2 464

Chart for Studying the Efficiency of Various Parts of Your Business
Winnebago and Stephenson County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 38 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

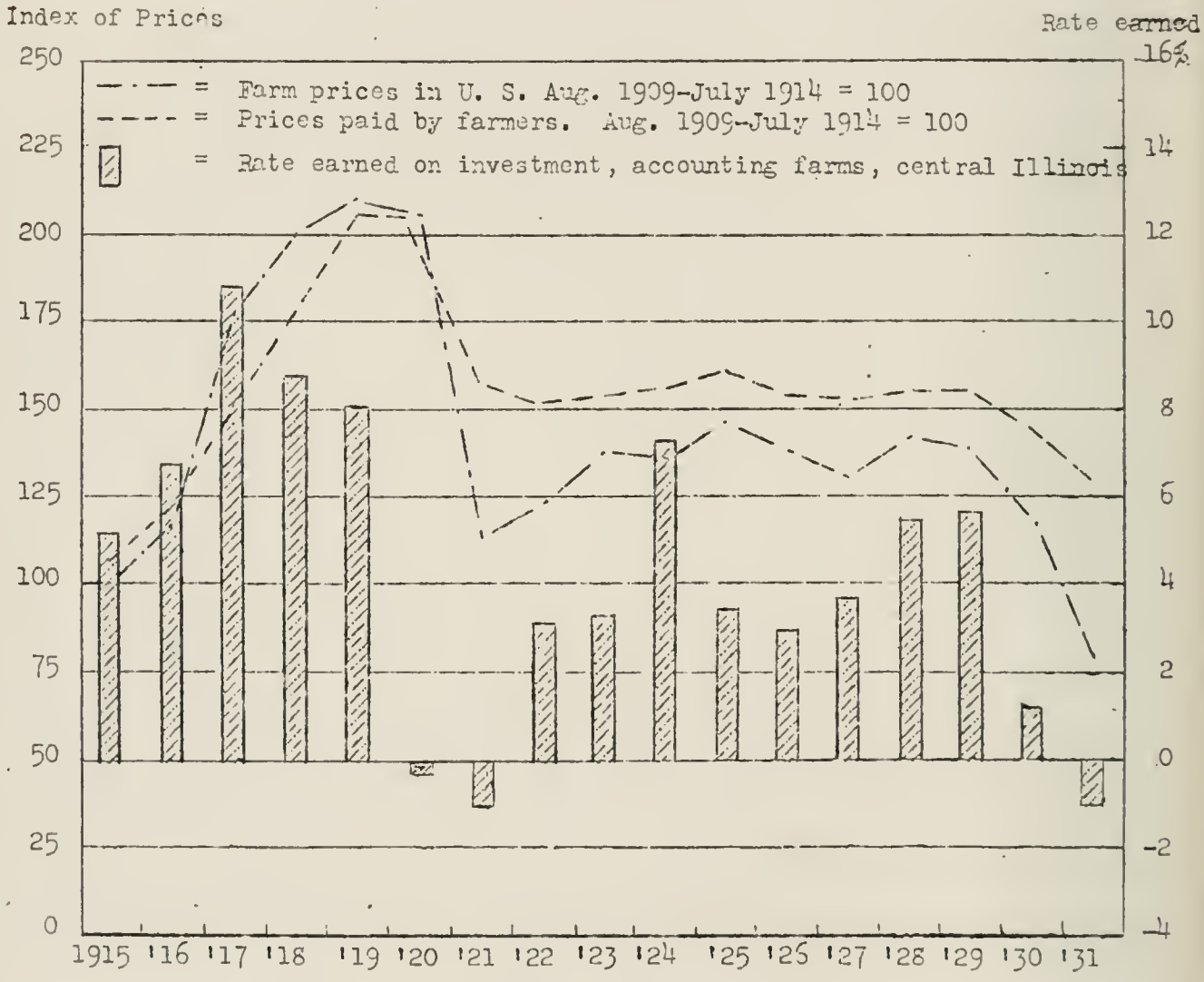
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Barley	Cattle	Poultry										
4.8	56	37	48	95	220	95	140	130	23	1.40	5	60	20	4 600	330
3.8	54	35	46	90	210	90	135	125	22	1.90	10	70	19	4 300	310
2.8	52	33	44	85	200	85	130	120	21	2.40	15	80	18	4 000	290
1.8	50	31	42	80	190	80	125	115	20	2.90	20	90	17	3 700	270
.8	48	29	40	75	180	75	120	110	19	3.40	25	100	16	3 400	250
-.2	46	27	38	70	170	70	115	105	18	3.90	30	110	15	3 100	230
-1.2	44	25	36	65	160	65	110	100	17	4.40	35	120	14	2 800	210
-2.2	42	23	34	60	150	60	105	95	16	4.90	40	130	13	2 500	190
-3.2	40	21	32	55	140	55	100	90	15	5.40	45	140	12	2 200	170
-4.2	38	19	30	50	130	50	95	85	14	5.90	50	150	11	1 900	150
-5.2	36	17	28	45	120	45	90	80	13	6.40	55	160	10	1 600	130
-6.2	34	15	26	40	110	40	85	75	12	6.90	60	170	9	1 300	110
-7.2	32	13	24	35	100	35	80	70	11	7.40	65	180	8	1 000	90
-8.2	30	11	22	30	90	30	75	65	10	7.90	70	190	7	700	70
-9.2	28	9	20	25	80	25	70	60	9	8.40	75	200	6	400	50

Factors Helping to Analyze the Farm Business on
38 Winnebago and Stephenson County Farms in 1931

Items	Your farm	Average of 38 farms	13 most profitable farms	13 least profitable farms
Size of farm--acres	_____	190.5	182.2	185.9
Percent of land area tillable		81.6	86.0	85.0
Gross receipts per acre	_____	13.11	17.75	9.92
Total expenses per acre		16.76	15.85	18.28
Net receipts per acre		-3.65	1.90	-8.36
Value of land per acre		90	103	84
Total investment per acre		164	180	162
Acres in Corn	_____	54.6	59.7	53.7
Oats	_____	30.6	35.2	26.3
Wheat	_____	3.2	1.0	6.0
Barley	_____	14.2	12.3	17.0
Crop yields--Corn, bu. per acre	_____	41.6	40.8	41.6
Oats, bu. per acre	_____	22.7	31.1	30.3
Barley, bu. per acre	_____	33.7	32.8	35.7
Value of feed fed to productive livestock	_____	2 373	2 427	2 451
Returns per $100 of feed fed to productive livestock	_____	103	129	75
Returns per $100 invested in:				
Cattle	_____	60	83	43
Poultry	_____	149	145	152
Pigs weaned per litter	_____	6.2	6.0	6.1
Income per litter farrowed	_____	59	53	48
Dairy sales per dairy cow	_____	94	97	73
Investment in productive livestock per acre	_____	16.34	18.20	14.64
Receipts from productive livestock per acre	_____	12.84	17.23	9.87
Power and machinery cost per crop acre	_____	4.91	4.08	5.09
Machinery cost per crop acre	_____	3.01	2.52	3.35
Value of feed fed to horses	_____	230	204	213
Man labor cost per $100 gross income	_____	40	32	50
Man labor cost per acre	_____	5.21	5.62	4.99
Expenses per $100 gross income	_____	128	89	184
Farm improvements cost per acre	_____	1.40	1.39	1.43
Farms with tractor	_____	71%	85%	95%
Excess of sales over cash expenses	_____	2 017	2 552	1 523
Decrease in inventory	_____	1 956	1 361	2 385

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN JO DAVIESS COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. W. Reitz, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Jo Daviess County, was lower in 1931 than in 1930. In 1930 the average net income was $1202 per farm while in 1931 there was an average loss of $771 per farm. In 1930, however, $1016 per farm was deducted for the labor of the operator and the family as compared with $851 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2250 in excess of cash expenses as compared with $1736 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*H. R. Brunnemeyer, farm adviser in Jo Daviess County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 30 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$3 700	$2 857
Feed, grain and supplies	2 032	1 345
Machinery	1 704	1 628
Improvements	5 267	5 217
Total inventory	$12 703	$11 047
Decrease in inventory		-$1 656

Total cash sales for 1931	-$3 331
Total cash purchases for 1931	1 595
Excess of cash sales over cash purchases	1 736
Decrease in inventory	1 656
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	80

The decrease in the feed, grain, and supplies inventory is the combined result of the decline in prices and the smaller crop yields of 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930 and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Jo Daviess County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 70 to 385 acres per farm. Two were smaller than 100 acres and 7 were larger than 300 acres. The average size for all farms in the group was 217 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	260 - 299	2
100 - 139	6	300 - 339	4
140 - 179	4	340 - 379	2
180 - 219	2	380 - 419	1
220 - 259	7		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $50 to $89 on 18 farms; $90 to $129 on 10 farms, [illegible], and $130 to $149 on 2 farms. The average value was $84 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $142 per acre.

As previously stated, the average for all farms indicated a loss of $771 per farm after deducting $851 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1727 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the 30 farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Five of the farms netted their operators incomes of more than $249; while the operators of 9 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	2	-750 to -1 249	6
749 to 250	3	-1 250 to -1 749	3
249 to -249	4	-1 750 to -2 249	3
-250 to -749	6	-2 250 to -2 749	2
		-2 750 to -3 249	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 177 acres in size as compared with 259 for the less profitable group. The smaller farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 3.1 bushels more corn, 11.9 bushels more oats, but 1.0 bushels less barley per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $494 per farm less than the beginning inventory, while on the less profitable farms it was $762 less than the beginning.

The investment per farm in livestock was $793 less on the most profitable farms than on the least profitable, but the income was $1002 per farm higher while at the same time the decrease from the feed and grain account was less by $422. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $126 for the more profitable farms as compared with $62 for the less profitable farms. There were 7.1 pigs weaned per litter on the more profitable farms but only 6.1 on the less profitable farms. Dairy sales were $13 per cow higher and returns per $100 invested in poultry $70 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $15.36 as compared with $6.31 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed but little difference. The average expense per acre for the most profitable farms was $13.45 as compared with $13.50 for the least profitable group. The cost of power and machinery was $.06 per crop acre lower for the more successful farms, but the man labor cost was $1.43 an acre higher. The less profitable farms had a loss of $1016 per farm in the feed and grain account, as compared with $594 for the more profitable group.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.91 per acre for the more profitable farms as compared with a loss of $7.19 per acre for the less profitable group. For the first group this was a return of 1.29% on the capital invested in the business and for the second group a loss of 5.81%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The total decrease in inventory was $2434 per farm for the least profitable group and $733 per farm for the most profitable group.

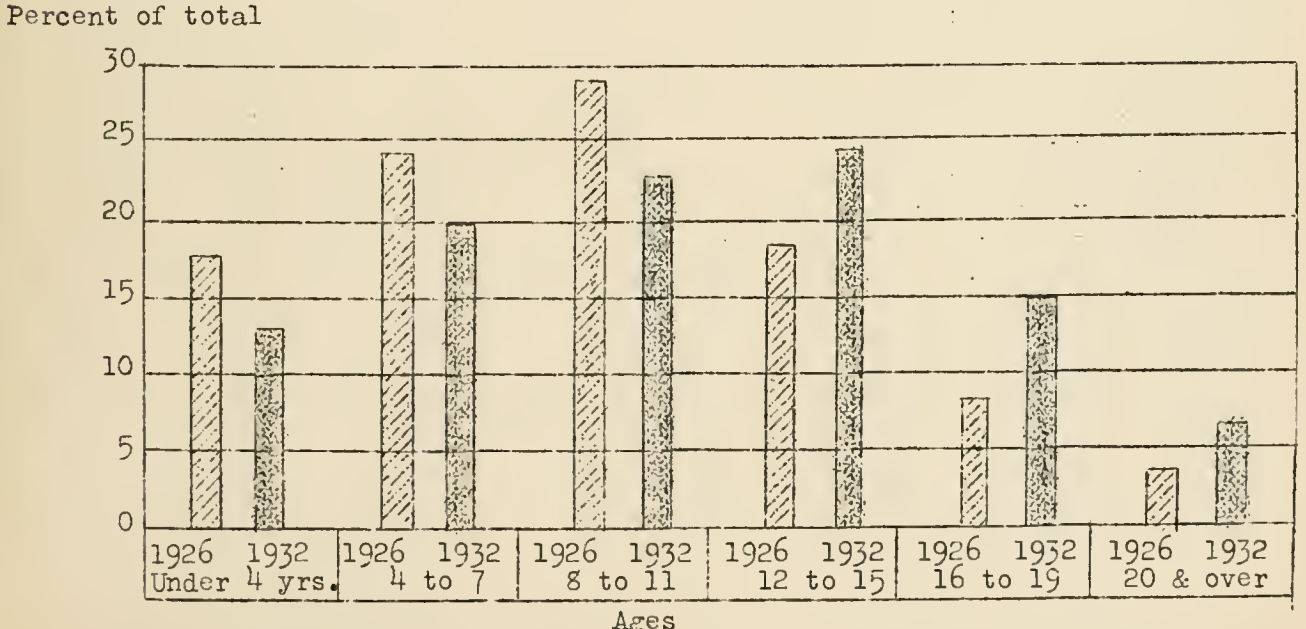
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Jo Daviess County for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $7 per acre higher in 1930. The gross income per acre was lower and the expense per acre was higher in 1931 than in 1930. The higher expense was due to a larger than normal decrease in the feed and grain account.

Comparison of Earnings and Investments on Accounting Farms in Jo Daviess County for 1928-1931

Items	1928*	1929	1930	1931
Number of farms	53	32	30	30
Average size of farms, acres	205	215	213	217
Average rate earned, to pay for management, risk and capital	5.6%	5.7%	3.8%	-2.5%
Average labor and management wage	$896	$911	$311	$-1 727
Gross income per acre	22.03	22.13	16.87	9.85
Operating cost per acre	12.86	13.33	11.23	13.40
Average value of land per acre	105	95	91	84
Total investment per acre	163	155	149	142
Investment per farm in:				
Total livestock	3 776	3 991	4 158	3 700
Cattle	2 064	2 495	2 603	2 243
Hogs	1 001	825	841	702
Poultry	177	176	203	140
Gross income per farm	4 517	4 759	3 595	2 141
Income per farm from:				
Crops	--	--	--	--
Miscellaneous income	58	53	42	89
Total livestock	4 459	4 706	3 553	2 052
Cattle	990	927	468	81
Dairy sales	1 243	1 566	1 183	899
Hogs	1 757	1 727	1 589	797
Poultry	389	406	285	256
Average yield of corn in bu.	48	41	47	40
Average yield of oats in bu.	48	36	51	40

*Records of Jo Daviess and Carroll counties.

Investments, Receipts, Expenses, and Earnings on
30 Jo Daviess County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		18 217	15 228	19 155
Farm improvements		5 267	4 148	5 328
Livestock total		3 700	3 292	4 085
Horses		447	404	502
Cattle		2 243	2 133	2 270
Hogs		702	439	933
Sheep		168	156	266
Poultry		140	160	114
Machinery and equipment		1 704	1 694	1 617
Feed, grain and supplies		2 032	1 848	1 896
Total capital investment	$	$30 920	$26 208	$32 081
RECEIPTS AND NET INCREASES				
Livestock total		2 052	2 584	1 582
Horses		--	--	--
Cattle		81	257	--
Hogs		797	747	812
Sheep		19	81	--
Poultry		126	272	75
Egg sales		130	121	91
Dairy sales		899	1 106	604
Feed, grain and supplies		--	--	--
Labor off farm		87	132	54
Miscellaneous receipts		2	2	2
Total receipts & net increases	$	$2 141	$2 718	$1 638
EXPENSES AND NET DECREASES				
Farm improvements		207	176	244
Horses		51	33	57
Miscellaneous livestock decreases				26 Sheep
		--	--	99 Cattle
Machinery and equipment		362	259	422
Feed, grain and supplies		779	594	1 016
Livestock expense		57	25	81
Crop expense		126	95	149
Hired labor		222	202	223
Taxes		226	162	274
Miscellaneous expenses		31	33	29
Total expenses & net decreases	$	$2 061	$1 579	$2 620
RECEIPTS LESS EXPENSES	$	$ 80	$1 139	$ -982
Total unpaid labor		851	801	882
Operator's labor		590	600	600
Family labor		261	201	282
Net income from investment and management		-771	338	-1 864
RATE EARNED ON INVESTMENT	%	-2.49%	1.29%	-5.81%
Return to capital and operator's labor and management		-181	938	-1 264
5% of capital invested		1 546	1 310	1 604
LABOR AND MANAGEMENT WAGE	$	$-1 727	$ -372	$-2 868

Chart for Studying the Efficiency of Various Parts of Your Business
Jo Daviess County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

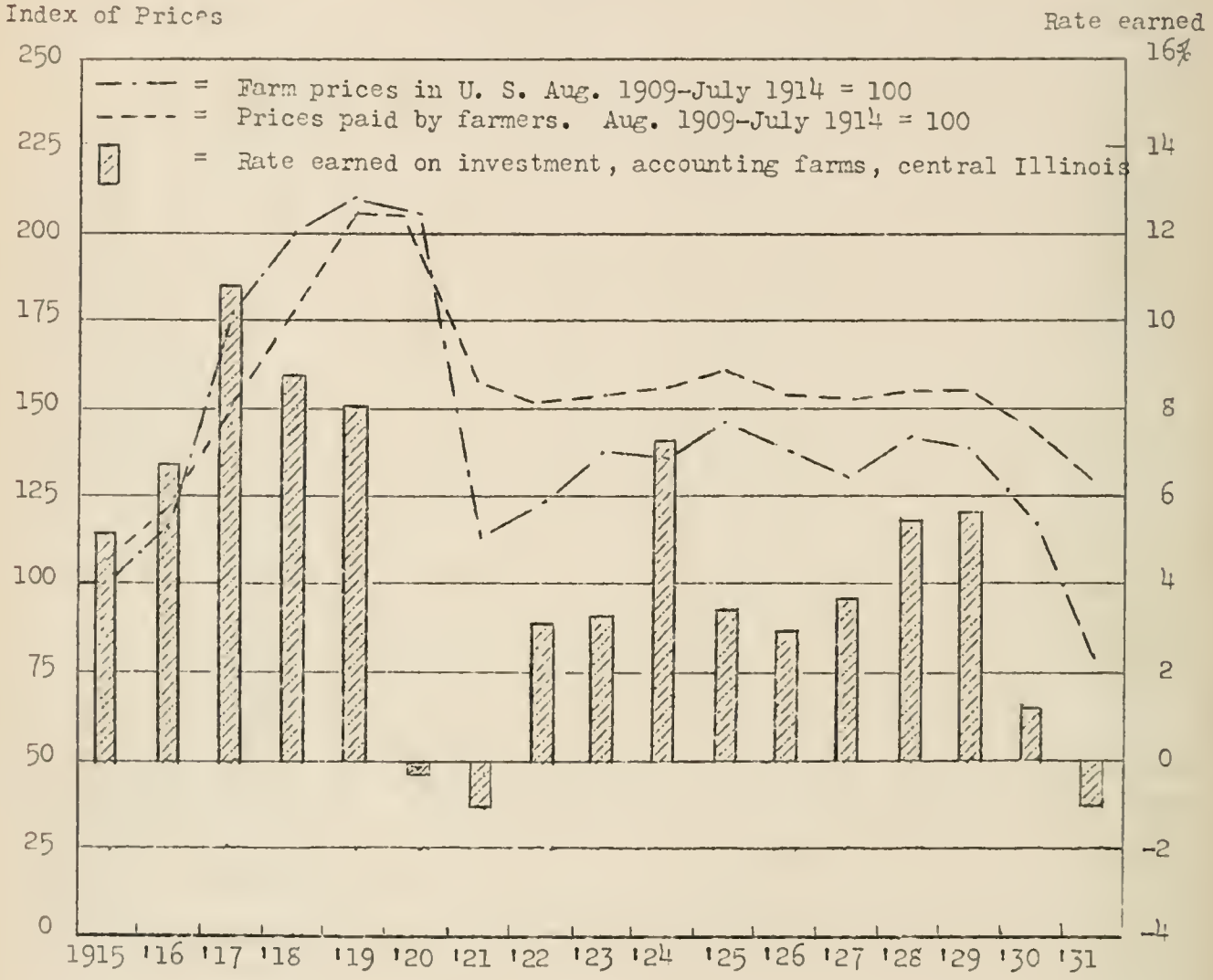
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Barley	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
4.5	54	54	47	120	330	90	160	130	20	2.30	15	65	17	5 600	360
3.5	52	52	45	110	310	85	150	120	19	2.80	20	75	16	5 100	340
2.5	50	50	43	100	290	80	140	110	18	3.30	25	85	15	4 600	320
1.5	48	48	41	90	270	75	130	100	17	3.80	30	95	14	4 100	300
.5	46	46	39	80	250	70	120	90	16	4.30	35	105	13	3 600	280
-.5	44	44	37	70	230	65	110	80	15	4.80	40	115	12	3 100	260
-1.5	42	42	35	60	210	60	100	70	14	5.30	45	125	11	2 600	240
-2.5	40	40	33	50	190	55	90	60	13	5.80	50	135	10	2 100	220
-3.5	38	38	31	40	170	50	80	50	12	6.30	55	145	9	1 600	200
-4.5	36	36	29	30	150	45	70	40	11	6.80	60	155	8	1 100	180
-5.5	34	34	27	20	130	40	60	30	10	7.30	65	165	7	600	160
-6.5	32	32	25	10	110	35	50	20	9	7.80	70	175	6	100	140
-7.5	30	30	23	0	90	30	40	10	8	8.30	75	185	5	——	120
-8.5	28	28	21	—	70	25	30	0	7	8.80	80	195	4	——	100
-9.5	26	26	19	—	50	20	20	—	6	9.30	85	205	3	——	80

Factors Helping to Analyze the Farm Business
on 30 Jo Daviess County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	217.3	176.9	259.4
Percent of land area tillable		68.2	68.6	66.7
Gross receipts per acre	_____	9.85	15.36	6.31
Total expenses per acre		13.40	13.45	13.50
Net receipts per acre		- 3.55	1.91	-7.19
Value of land per acre		84	86	74
Total investment per acre		142	148	124
Acres in Corn	_____	45.3	31.1	53.6
Oats	_____	22.3	18.2	25.2
Wheat	_____	2.4	1.4	4.1
Barley	_____	10.5	6.5	10.1
Crop yields--Corn, bu. per acre	_____	39.9	42.6	39.5
Oats, bu. per acre	_____	40.0	46.2	34.3
Barley, bu. per acre	_____	33.4	31.4	32.4
Value of feed fed to productive livestock	_____	2 274	2 050	2 340
Returns per $100 of feed fed to productive livestock	_____	90	126	62
Returns per $100 invested in:				
Cattle	_____	48	66	26
Poultry	_____	192	235	165
Pigs weaned per litter	_____	6.3	7.1	6.1
Income per litter farrowed	_____	53	73	42
Dairy sales per dairy cow	_____	61	71	58
Investment in productive livestock per acre	_____	13.15	15.57	11.25
Receipts from productive livestock per acre	_____	9.44	14.61	5.62
Power and machinery cost per crop acre	_____	5.78	5.91	5.97
Machinery cost per crop acre	_____	3.16	2.89	3.41
Value of feed fed to horses	_____	249	237	260
Man labor cost per $100 gross income	_____	49	36	64
Man labor cost per acre	_____	4.82	5.48	4.05
Expenses per $100 gross income	_____	136	88	214
Farm improvements cost per acre	_____	.95	.99	.94
Farms with tractor	_____	73%	70%	70%
Excess of sales over cash expenses	_____	1 736	1 872	1 452
Decrease in inventory	_____	1 656	733	2 434

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

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ANNUAL FARM BUSINESS REPORT ON THIRTY-SEVEN FARMS IN LEE AND OGLE COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, H. G. Russell, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Lee and Ogle counties, was lower in 1931 than in 1930. In 1930 the average net income was $1074 per farm, while in 1931 there was an average loss of $760 per farm. In 1930, however, $803 per farm was deducted for the labor of the operator and the family as compared with $832 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2588 in excess of cash expenses as compared with $1663 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production, since the total production of agricultural products in this country has not increased during the last five years, while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*C. E. Yale and D. E. Warren, farm advisers in Lee and Ogle counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Lee and Ogle county farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$4 118	$3 415	
Feed, grain and supplies	2 393	1 806	
Machinery	2 075	1 935	
Improvements	5 817	5 656	
Total inventory	14 403	12 812	
Decrease in inventory			-$1 591
Total cash sales for 1931			-$4 555
Total cash purchases for 1931			- 2 892
Excess of cash sales over cash purchases			- 1 663
Decrease in inventory			- 1 591
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			72

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of corn on hand at the end of the year. Corn yields averaged 7.3 bushels per acre higher in 1931 than in 1930, while oats yields were 4.8 bushels lower and barley yields were 3.1 bushels lower than for the previous year.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Lee and Ogle counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 37 farms included in this study ranged in size from 110 to 483 acres per farm. Eight were smaller than 140 acres and 5 were larger than 340 acres. The average size for all farms in the group was 232 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
100 - 139	8	300 - 339	6
140 - 179	5	340 - 379	2
180 - 219	5	380 - 419	2
220 - 259	6	420 - 459	0
260 - 299	2	460 - 499	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 37 farms included in the present study, the value of bare land per acre was $50 to $89 on 9 farms; $90 to $129 on 25 farms, and $150 to $209 on 3 farms. The average value was $98 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $172 per acre.

As previously stated, the average for all farms indicated a loss of $760 per farm after deducting $832 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2148 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Five of the farms netted their operators incomes of more than $249; while the operators of 9 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms[1]	Net income per farm	Number of farms
$1 249 to 750	1	$-1 250 to -1 749	4
749 to 250	3	-1 750 to -2 249	2
249 to -249	3	-2 250 to -2 749	0
-249 to -749	10	-2 750 to -3 249	2
-750 to -1 249	10	-3 250 to -3 749	1

[1] One farm had a net income of $3098

A comparison of the 12 farms having the highest rate earned on investment with the 12 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 261 acres in size as compared with 212 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The most profitable farms grew 1.4 bushels more corn, but .3 bushels less oats per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $154 per farm lower than the beginning inventory, while on the less profitable farms it was $859 less than the beginning inventory.

The investment per farm in livestock was $566 less on the most profitable farms than on the least profitable, yet the income was $675 per farm higher, while at the same time the increase from the feed and grain account was larger by $1294. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $118 for the more profitable farms as compared with $75 for the less profitable farms. There were 7.1 pigs weaned per litter on the more profitable farms but only 6.2 on the less profitable farms. Dairy sales were $29 per cow higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.94 as compared with $8.29 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $9.69 as compared with $16.64 for the least profitable group. The cost of power and machinery was $1.90 per crop acre lower for the more successful farms, and the man labor cost was $1.30 an acre lower. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $887 per farm in the feed and grain account, as compared with a gain of $407 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.25 per acre for the more profitable farms as compared with a loss of $8.35 per acre for the less profitable group. For the first group this was a return of .72% on the capital invested in the business and for the second group a loss of 5.21%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor, feed and improvements accounts.

The more profitable farms had a decrease of $936 in inventory values during 1931 as compared with a decrease of $2099 per farm for the less profitable farms.

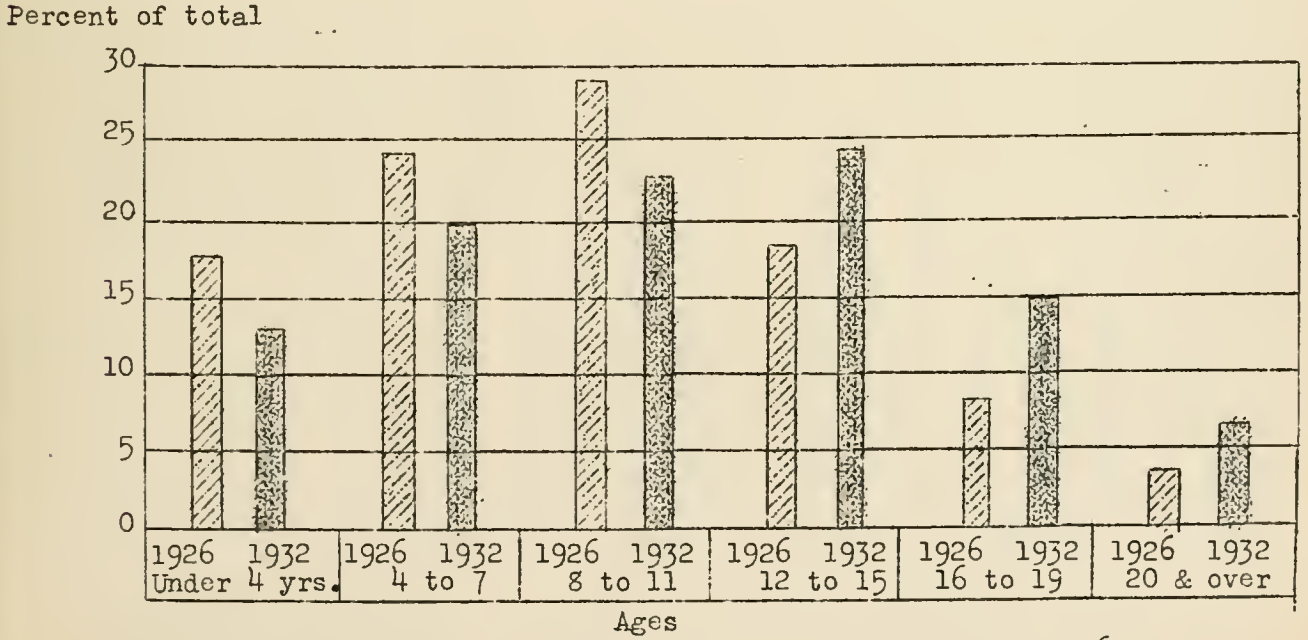
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Lee and Ogle counties for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $15 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Lee and Ogle Counties for 1928-1931

Items	1928[1]	1929[2]	1930[3]	1931
Number of farms	49	71	55	37
Average size of farms, acres	205	208	206	232
Average rate earned, to pay for management, risk, and capital	4.9%	5.2%	2.8%	-1.9%
Average labor and management wage	$643	$798	$-72	$-2148
Gross income per acre	22.31	23.40	18.15	9.13
Operating cost per acre	13.05	13.54	12.94	12.41
Average value of land per acre	128	122	113	98
Total investment per acre	189	190	183	172
Investment per farm in:				
Total livestock	3766	4389	4293	4118
Cattle	1839	2398	2652	2586
Hogs	1107	1126	812	808
Poultry	153	173	173	139
Gross income per farm	4584	4868	3740	2115
Income per farm from:				
Crops	131	--	--	--
Miscellaneous income	61	39	64	42
Total livestock	4392	4829	3676	2073
Cattle	1066	1115	691	564
Dairy sales	944	836	1158	520
Hogs	1946	2408	1548	757
Poultry	306	389	239	207
Average yield of corn in bu.	50	46	41	49
Average yield of oats in bu.	44	45	49	44

1/ Records from Rock Island and Whiteside counties included for 1928.

2/ Records from Carroll, Rock Island, and Whiteside counties included for 1929.

3/ Records from Stephenson county included for 1930.

Investments, Receipts, Expenses, and Earnings on
37 Lee and Ogle County Farms, 1931

Items	Your farm	Average of 37 farms	12 most profitable farms	12 least profitable farms
CAPITAL INVESTMENTS				
Land		25 340	30 963	19 476
Farm improvements		5 817	6 008	5 790
Livestock total		4 118	3 773	4 339
Horses		517	529	540
Cattle		2 586	2 251	2 806
Hogs		808	780	818
Sheep		68	42	52
Poultry		139	171	123
Machinery and equipment		2 075	2 551	1 858
Feed, grain and supplies		2 393	2 349	2 480
Total capital investment	$	$ 39 743	$ 45 644	$33 943
RECEIPTS AND NET INCREASES				
Livestock total		2 073	2 397	1 722
Horses		--	--	--
Cattle		564	749	451
Hogs		757	909	741
Sheep		25	--	36
Poultry		65	76	58
Egg sales		142	155	116
Dairy sales		520	508	320
Feed, grain and supplies		--	407	--
Labor off farm		38	47	33
Miscellaneous receipts		4	7	--
Total receipts & net increases	$	$ 2 115	$ 2 858	$ 1 755
EXPENSES AND NET DECREASES				
Farm improvements		275	223	277
Horses		18	4	34
Miscellaneous livestock decreases--sheep		--	4	--
Machinery and equipment		480	513	511
Feed, grain and supplies		327	--	887
Livestock expense		58	52	72
Crop expense		177	196	178
Hired labor		254	223	287
Taxes		422	475	422
Miscellaneous expenses		32	24	29
Total expenses & net decreases	$	$ 2 043	$ 1 714	$ 2 697
RECEIPTS LESS EXPENSES	$	$ 72	$ 1 144	$ - 942
Total unpaid labor		832	818	826
Operator's labor		600	600	600
Family labor		232	218	226
Net income from investment and management		-760	326	-1 768
RATE EARNED ON INVESTMENT	%	-1.91 %	.72%	-5.21%
Return to capital and operator's labor and management		-161	926	-1 168
5% of capital invested		1 987	2 282	1 697
LABOR AND MANAGEMENT WAGE	$	$ -2 148	$ -1 356	$ -2 865

Chart for Studying the Efficiency of Various Parts of Your Business, Lee and Ogle Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 37 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

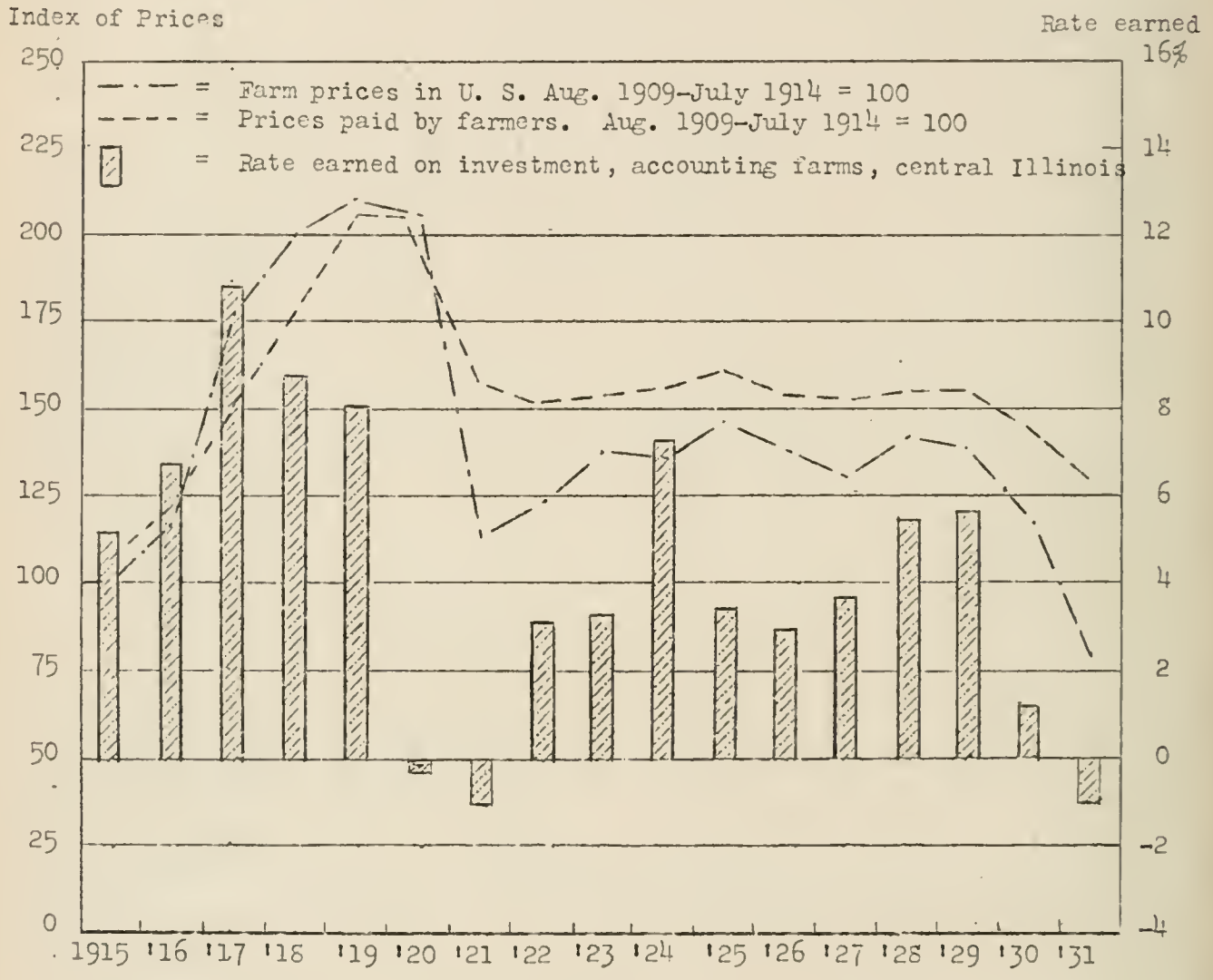
Rate earned	Bushels per acre of			Returns per $100 invested in		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Barley	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.0	63	58	47	80	230	95	130	140	21	.75	29	65	23	5 600	370
4.0	61	56	45	75	220	90	125	130	20	1.25	32	75	21	5 100	350
3.0	59	54	43	70	210	85	120	120	19	1.75	35	85	19	4 600	330
2.0	57	52	41	65	200	80	115	110	18	2.25	38	95	17	4 100	310
1.0	55	50	39	60	190	75	110	100	17	2.75	41	105	15	3 600	290
.0	53	48	37	55	180	70	105	90	16	3.25	44	115	13	3 100	270
-1.0	51	46	35	50	170	65	100	80	15	3.75	47	125	11	2 600	250
-2.0	49	44	33	45	160	60	95	70	14	4.25	50	135	9	2 100	230
-3.0	47	42	31	40	150	55	90	60	13	4.75	53	145	7	1 600	210
-4.0	45	40	29	35	140	50	85	50	12	5.25	56	155	5	1 100	190
-5.0	43	38	27	30	130	45	80	40	11	5.75	59	165	3	600	170
-6.0	41	36	25	25	120	40	75	30	10	6.25	62	175	1	100	150
-7.0	39	34	23	20	110	35	70	20	9	6.75	65	185	--	--	130
-8.0	37	32	21	15	100	30	65	10	8	7.25	68	195	--	--	110
-9.0	35	30	19	10	90	25	60	0	7	7.75	71	205	--	--	90

Factors Helping to Analyze the Farm Business on
37 Lee and Ogle County Farms in 1931

Items	Your farm	Average of 37 farms	12 most profitable farms	12 least profitable farms
Size of farm--acres	_____	231.7	261.3	211.8
Percent of land area tillable		86.9	87.6	82.2
Gross receipts per acre	_____	9.13	10.94	8.29
Total expenses per acre		12.41	9.69	16.64
Net receipts per acre		-3.28	1.25	-8.35
Value of land per acre		98	118	92
Total investment per acre		172	175	160
Acres in Corn	_____	73.4	95.2	58.9
Oats	_____	43.2	48.1	37.0
Wheat	_____	5.3	8.3	1.9
Barley	_____	11.3	12.1	11.4
Crop yields--Corn, bu. per acre	_____	48.6	49.3	47.9
Oats, bu. per acre	_____	44.4	45.7	46.0
Barley, bu. per acre	_____	32.8	31.6	31.6
Value of feed fed to productive livestock	_____	2 184	2 032	2 296
Returns per $100 of feed fed to productive livestock	_____	95	118	75
Returns per $100 invested in:				
Cattle	_____	45	60	30
Poultry	_____	160	147	159
Pigs weaned per litter	_____	6.6	7.1	6.2
Income per litter farrowed	_____	62	66	49
Dairy sales per dairy cow	_____	68	79	50
Investment in productive livestock per acre	_____	14.08	11.34	18.26
Receipts from productive livestock per acre	_____	8.94	9.16	8.13
Power and machinery cost per crop acre	_____	4.24	3.55	5.45
Machinery cost per crop acre	_____	2.84	2.52	3.59
Value of feed fed to horses	_____	219	207	230
Man labor cost per $100 gross income	_____	50	35	62
Man labor cost per acre	_____	4.52	3.80	5.10
Expenses per $100 gross income	_____	136	89	201
Farm improvements cost per acre	_____	1.19	.85	1.31
Farms with tractor	_____	65%	67%	58%
Excess of sales over cash expenses	_____	1 663	2 080	1 157
Decrease in inventory	_____	1 591	936	2 099

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON SIXTY-TWO FARMS IN ROCK ISLAND, CARROLL, AND WHITESIDE COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, H. G. Russell, and H. C. M. Case*

The average of farm earnings on account keeping farms in Rock Island, Carroll, and Whiteside counties was lower in 1931 than in 1930. In 1930 the average net income was $766 per farm while in 1931 there was an average loss of $1033 per farm. In 1930, however, $951 per farm was deducted for the labor of the operator and the family as compared with $778 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2437 in excess of cash expenses as compared with $1790 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*J. R. Spencer, M. P. Roske, and F. H. Shuman, farm advisers in Rock Island, Carroll, and Whiteside counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 62 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$3 427	$2 368
Feed, grain and supplies	2 006	1 298
Machinery	1 877	1 727
Improvements	4 962	4 834
Total inventory	$12 272	$10 267
Decrease in inventory		$2 045
Total cash sales for 1931		3 796
Total cash purchases for 1931		2 006
Excess of cash sales over cash purchases		1 790
Decrease in inventory		2 045
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)		255

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the slightly larger quantity of these supplies on hand at the end of the year. The larger supply was due to a larger carryover of grains as crop yields were smaller in 1931 than in 1930.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent the average farm conditions in Rock Island, Carroll, and Whiteside counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 62 farms included in this study ranged in size from 76 to 395 acres per farm. Four were smaller than 100 acres and 5 were larger than 300 acres. The average size for all farms in the group was 177 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	4	260 - 299	2
100 - 139	15	300 - 339	3
140 - 179	19	340 - 379	1
180 - 219	11	380 - 419	1
220 - 259	6		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 62 farms included in the present study, the value of bare land per acre was $38 to $89 on 10 farms; $90 to $149 on 38 farms, and $150 to $189 on 14 farms. The average value was $117 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $186 per acre.

As previously stated, the average for all farms indicated a loss of $1033 per farm after deducting $778 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2094 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249, while the operators of 20 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms[1]
$1 249 to 750	1	- 750 to -1 249	22
749 to 250	2	-1 250 to -1 749	10
249 to -249	8	-1 750 to -2 249	6
-250 to -749	9	-2 250 to -2 749	2
		-2 750 to -3 249	1

[1] One farm had a loss of $5218

A comparison of the 20 farms having the highest rate earned on investment with the 20 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 197 acres in size as compared with 159 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups and there was but little difference in the crop yields. The most profitable farms grew 3.6 bushels more corn, 2.5 bushels less oats, and 12 bushels less barley per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $559 per farm less than the beginning inventory, while on the less profitable farms it was $822 less than the beginning inventory.

The investment per farm in livestock was $120 more on the most profitable farms than on the least profitable and the income was $1058 per farm higher while at the same time the decrease from the feed and grain account was smaller by $499. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $114 for the more profitable farms as compared with $68 for the less profitable farms. There were 6.3 pigs weaned per litter on the more profitable farms but only 5.4 on the less profitable farms. Dairy sales were $4 per cow higher and returns per $100 invested in poultry $48 higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $13.02 as compared with $9.49 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $14.24 as compared with $20.55 for the least profitable group. The cost of power and machinery was $.98 per crop acre lower for the more successful farms, and the man labor cost was $1.39 an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $1191 per farm in the feed and grain account, as compared with a loss of $692 for the more profitable farms.

After deducting expenses and net decreases from income and net increases, there remained a net decrease of $1.22 per acre for the more profitable farms as compared with a loss of $11.06 per acre for the less profitable group. For the first group this was a loss of .68% on the the capital invested in the business and for the second group a loss of 5.94%. The higher income per acre on the more profitable farms was due to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed, labor, and improvements accounts. The chief difference between the two groups of farms was due to the decrease in inventory of $1696 per farm for the most profitable group as compared with a decrease of $2469 per farm for the least profitable farms.

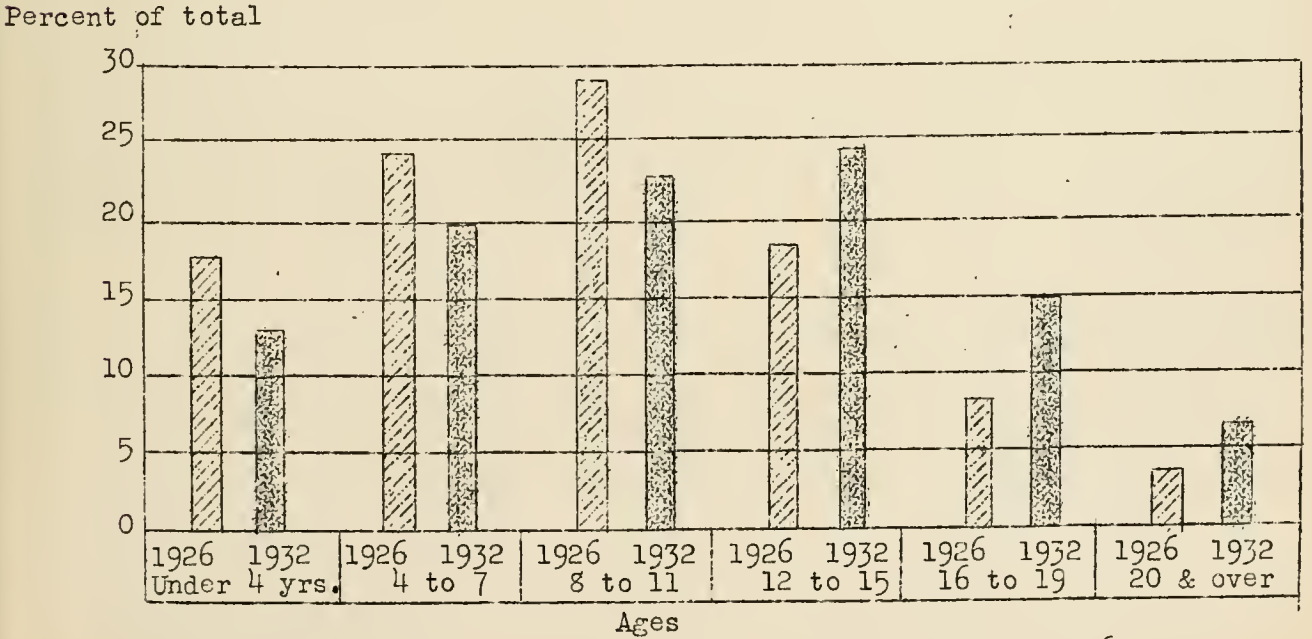
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Rock Island, Carroll, and Whiteside counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $3 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930, the decrease in the income being much more severe than the decrease in cost of operating the farms.

Comparison of Earnings and Investments on Accounting Farms in Rock Island, Carroll, and Whiteside Counties for 1927-1931

Items	1927[1]	1928[2]	1929[2]	1930	1931
Number of farms	29	49	71	59	62
Average size of farms, acres	196	205	208	178	177
Average rate earned, to pay for management, risk and capital	4.2%	4.9%	5.2%	2.2%	-3.1%
Average labor and management wage	$383	$643	$798	$-243	$-2094
Gross income per acre	26.80	22.31	23.40	22.19	11.80
Operating cost per acre	17.85	13.05	13.54	17.89	17.63
Average value of land per acre	142	128	122	120	117
Total investment per acre	212	189	190	194	186
Investment per farm in:					
Total livestock	4546	3766	4389	4025	3427
Cattle	1969	1839	2398	2067	1720
Hogs	1778	1107	1126	1208	1005
Poultry	154	153	173	209	171
Gross income per farm	5265	4584	4868	3956	2089
Income per farm from:					
Crops	--	131	--	--	--
Miscellaneous income	34	61	39	42	60
Total livestock	5231	4392	4829	3914	2029
Cattle	1374	1066	1115	691	279
Dairy sales	674	944	836	684	486
Hogs	2853	1946	2408	2167	1009
Poultry	271	306	389	350	237
Average yield of corn in bu.	43	50	46	46	45
Average yield of oats in bu.	39	44	45	46	41

1/ Records from Mercer county included for 1927.

2/ Records from Ogle and Lee ccunties included for 1928 and 1929.

Investments, Receipts, Expenses, and Earnings on 62 Rock Island, Carroll, and Whiteside County Farms, 1931

Items	Your farm	Average of 62 farms	20 most profitable farms	20 least profitable farms
CAPITAL INVESTMENTS				
Land		20 715	23 851	17 386
Farm improvements		4 962	4 403	5 171
Livestock total		3 427	3 485	3 365
Horses		433	439	348
Cattle		1 720	1 929	1 711
Hogs		1 005	878	1 033
Sheep		98	83	95
Poultry		171	156	178
Machinery and equipment		1 877	1 890	1 818
Feed, grain and supplies		2 006	2 003	1 963
Total capital investment	$	$32 987	$35 632	$29 703
RECEIPTS AND NET INCREASES				
Livestock total		2 029	2 498	1 440
Horses		--	--	--
Cattle		279	516	77
Hogs		1 009	1 094	680
Sheep		18	--	12
Poultry		69	47	48
Egg sales		168	198	134
Dairy sales		486	643	489
Feed, grain and supplies		--	--	--
Labor off farm		56	67	67
Miscellaneous receipts		4	4	5
Total receipts & net increases	$	$ 2 089	$ 2 569	$ 1 512
EXPENSES AND NET DECREASES				
Farm improvements		228	205	231
Horses		38	47	24
Miscellaneous livestock decreases--Sheep		--	8	--
Machinery and equipment		386	379	392
Feed, grain and supplies		983	692	1 191
Livestock expense		53	48	46
Crop expense		136	143	128
Hired labor		205	164	215
Taxes		287	322	235
Miscellaneous expenses		28	29	25
Total expenses & net decreases	$	$ 2 344	$ 2 037	$ 2 487
RECEIPTS LESS EXPENSES	$	$ -255	$ 532	$ -975
Total unpaid labor		778	773	788
Operator's labor		588	600	582
Family labor		190	173	206
Net income from investment and management		-1 033	- 241	-1 763
RATE EARNED ON INVESTMENT	%	-3.13%	-.68 %	-5.94 %
Return to capital and operator's labor and management		-445	359	-1 181
5% of capital invested		1 649	1 782	1 485
LABOR AND MANAGEMENT WAGE	$	$-2 094	$-1 423	$-2 666

Chart for Studying the Efficiency of Various Parts of Your Business
Rock Island, Carroll and Whiteside Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 62 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

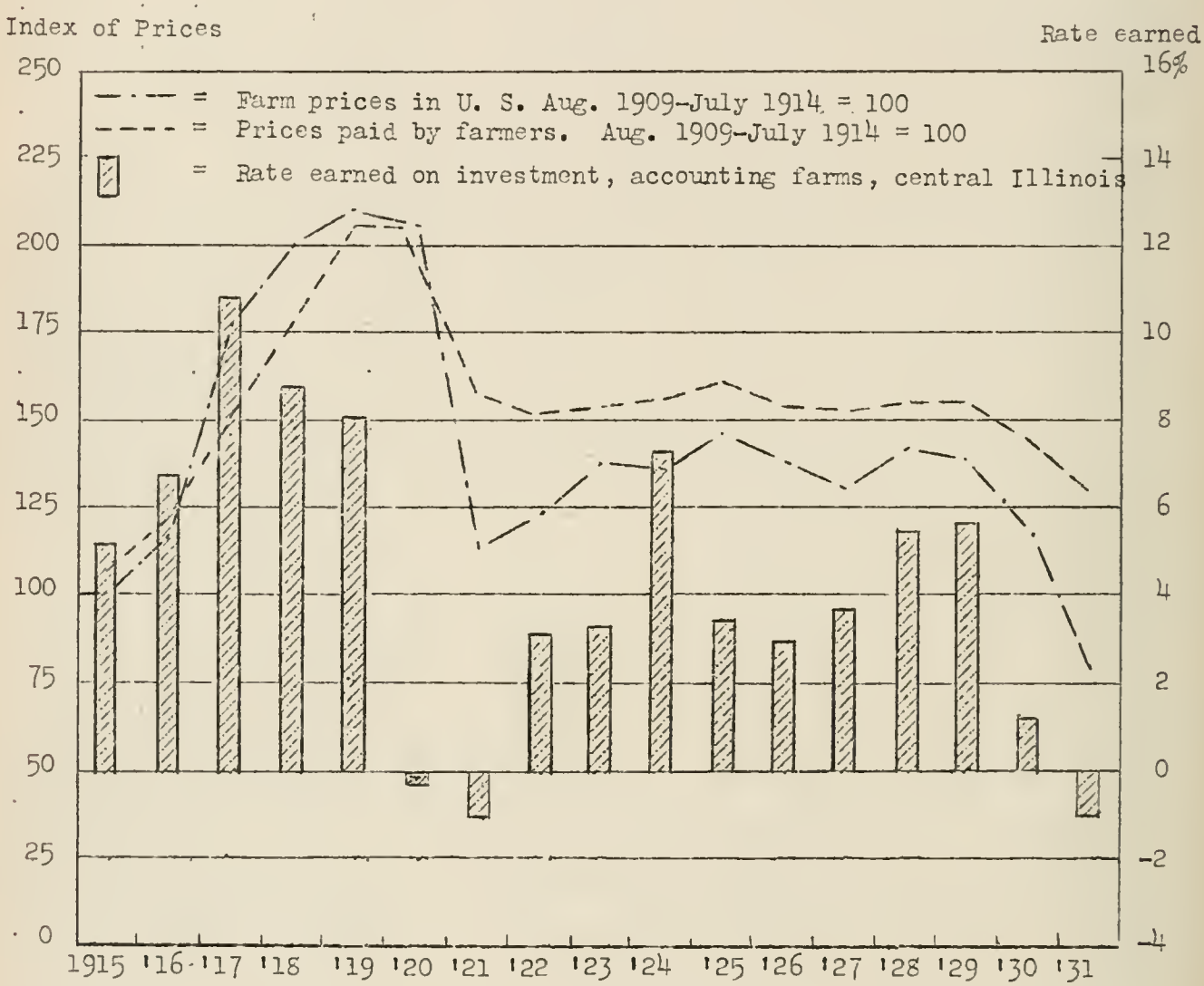
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Barley	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
3.9	59	55	43	85	220	85	165	100	21	1.50	24	80	19	4 200	320
2.9	57	53	41	80	210	80	155	95	20	2.00	27	90	18	3 900	300
1.9	55	51	39	75	200	75	145	90	19	2.50	30	100	17	3 600	280
.9	53	49	37	70	190	70	135	85	18	3.00	33	110	16	3 300	260
-.1	51	47	35	65	180	65	125	80	17	3.50	36	120	15	3 000	240
-1.1	49	45	33	60	170	60	115	75	16	4.00	39	130	14	2 700	220
-2.1	47	43	31	55	160	55	105	70	15	4.50	42	140	13	2 400	200
-3.1	45	41	29	50	150	50	95	65	14	5.00	45	150	12	2 100	180
-4.1	43	39	27	45	140	45	85	60	13	5.50	48	160	11	1 800	160
-5.1	41	37	25	40	130	40	75	55	12	6.00	51	170	10	1 500	140
-6.1	39	35	23	35	120	35	65	50	11	6.50	54	180	9	1 200	120
-7.1	37	33	21	30	110	30	55	45	10	7.00	57	190	8	900	100
-8.1	35	31	19	25	100	25	45	40	9	7.50	60	200	7	600	80
-9.1	33	29	17	20	90	20	35	35	8	8.00	63	210	6	300	60
-10.1	31	27	15	15	80	15	25	30	7	8.50	66	220	5	0	40

Factors Helping to Analyze the Farm Business on
62 Rock Island, Carroll, and Whiteside County Farms in 1931

Items	Your farm	Average of 62 farms	20 most profitable farms	20 least profitable farms
Size of farm--acres	_____	177.1	197.3	159.4
Percent of land area tillable		84.4	84.1	82.5
Gross receipts per acre	_____	11.80	13.02	9.49
Total expenses per acre	_____	17.63	14.24	20.55
Net receipts per acre		-5.83	-1.22	-11.06
Value of land per acre		117	121	109
Total investment per acre		186	181	186
Acres in Corn	_____	61.4	65.6	55.0
Oats	_____	25.7	25.8	24.6
Wheat	_____	5.5	7.8	4.2
Barley	_____	6.2	8.4	4.2
Crop yields--Corn, bu. per acre	_____	44.7	45.9	42.3
Oats, bu. per acre	_____	41.2	38.9	41.4
Barley, bu. per acre	_____	28.7	25.0	37.0
Value of feed fed to productive livestock	_____	2 176	2 193	2 115
Returns per $100 of feed fed to productive livestock	_____	93	114	68
Returns per $100 invested in:				
Cattle	_____	52	67	41
Poultry	_____	153	171	123
Pigs weaned per litter	_____	6.1	6.3	5.4
Income per litter farrowed	_____	48	54	37
Dairy sales per dairy cow	_____	65	70	66
Investment in productive livestock per acre	_____	14.03	13.41	14.62
Receipts from productive livestock per acre	_____	11.46	12.62	9.03
Power and machinery cost per crop acre	_____	4.97	4.53	5.51
Machinery cost per crop acre	_____	3.12	2.76	3.60
Value of feed fed to horses	_____	190	196	185
Man labor cost per $100 gross income	_____	46	36	64
Man labor cost per acre	_____	5.41	4.65	6.04
Expenses per $100 gross income	_____	149	109	217
Farm improvements cost per acre	_____	1.29	1.04	1.45
Farms with tractor	_____	65%	65%	60%
Excess of sales over cash expenses	_____	1 790	2 228	1 494
Decrease in inventory	_____	2 045	1 696	2 469

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN BUREAU AND HENRY COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. F. Shoot and H. C. M. Case*

The average of farm earnings, on account keeping farms in Bureau and Henry Counties, was lower in 1931 than in 1930. In 1930 the average net income was $706 per farm while in 1931 there was an average loss of $976 per farm. In 1930, however, $889 per farm was deducted for the labor of the operator and the family as compared with $780 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2907 in excess of cash expenses as compared with $1422 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*W. W. Wilson and H. K. Danforth, farm advisers in Bureau and Henry Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 30 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$2 866	$2 223
Feed, grain and supplies	2 227	1 611
Machinery	1 771	1 556
Improvements	4 694	4 550
Total inventory	11 558	9 940
Decrease in inventory		$1 618
Total cash sales for 1931		$3 792
Total cash purchases for 1931		2 370
Excess of cash sales over cash purchases		1 422
Decrease in inventory		1 618
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)		196

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Bureau and Henry Counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in

selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 80 to 407 acres per farm. Five were smaller tham 100 acres and 6 were larger than 259 acres. The average size for all farms in the group was 194 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	5	260 - 299	5
100 - 139	3	300 - 339	0
140 - 179	5	340 - 379	0
180 - 219	6	380 - 419	1
220 - 259	5		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in ths business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land was $50 to $109 per acre on 10 farms; $110 to $169 on 10 farms, and $170 to $209 on 10 farms. The average value was $139 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $199 per acre.

As previously stated, the average for all farms indicated a loss of $976 per farm after deducting $780 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2305 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings From Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Two of the farms netted their operators incomes of more than $249; while the operators of 9 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
749 to 250	2	-1 250 to -1 749	6
249 to - 249	5	-1 750 to -2 249	0
-250 to - 749	7	-2 250 to -2 749	0
-750 to -1 249	7	-2 750 to -3 249	2
		-3 250 to -3 749	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 211 acres in size as compared with 183 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, and there was but little difference in the crop yields. The more profitable farms grew 1.0 bushels less corn, 1.0 bushels more oats, and .2 bushels less barley per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $377 per farm less than the beginning inventory, while on the less profitable farms it was $678 less than the beginning.

The investment per farm in livestock was $154 less on the most profitable farms than on the least profitable yet the income was $563 per farm higher while at the same time the increase from the feed and grain account was larger by $1105. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $114 for the more profitable farms as compared with $69 for the less profitable farms. There were 5.6 pigs weaned per litter on the more profitable farms but only 5.3 on the less profitable farms. Dairy sales were $79 per cow higher and returns per $100 invested in poultry $30 higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.76 as compared with $7.33 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $11.88 as compared with $16.44 for the least profitable group. The cost of power and machinery was $1.91 per crop acre lower for the more successful farms but the man labor cost was 72 cents an acre higher. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $719 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net loss of $1.12 per acre for the more profitable farms as compared with a loss of $9.11 per acre for the less profitable group. For the first group this was a loss of .59% on the capital invested in the business and for the second group a loss of 5.08%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed and improvements accounts.

The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

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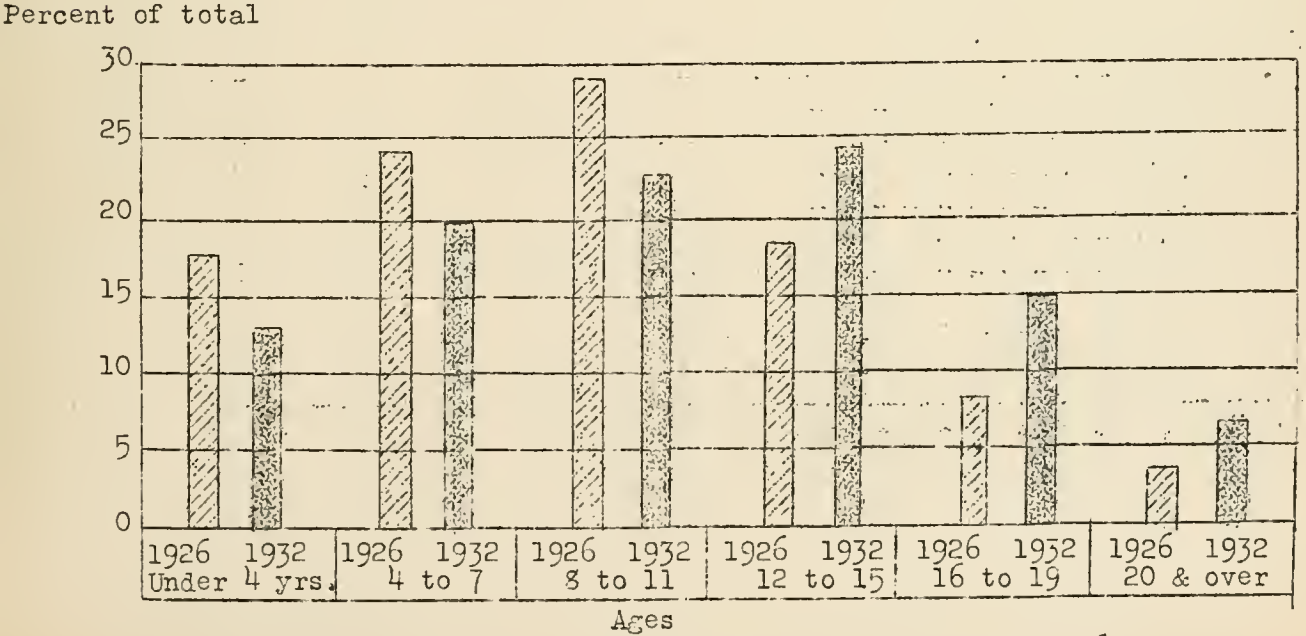


Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Two-Year Period

Some comparative investment and earning data on accounting farms in Bureau and Henry Counties for 1930 and 1931 are shown in the following table. The rate earned dropped sharply in 1931 in response to the drop in prices of products sold and to the mark down in inventory. There was an increase from the feed and grain account in 1930 but a decrease in 1931 in spite of better crop yields.

Comparison of Earnings and Investments on Accounting Farms in Bureau and Henry Counties for 1930-1931

Items	1930[1]	1931
Number of farms	43	30
Average size of farms, acres	212	194
Average rate earned, to pay for management, risk and capital	1.6%	-2.5%
Average labor and management wage	$ -722	$-2 305
Gross income per acre	16.23	8.52
Operating cost per acre	12.90	13.55
Average value of land per acre	141	139
Total investment per acre	203	199
Investment per farm in:		
Total livestock	3 948	2 866
Cattle	1 886	1 241
Hogs	1 296	973
Poultry	146	151
Gross income per farm	3 440	1 652
Income per farm from:		
Crops	232	---
Miscellaneous income	26	34
Total livestock	3 182	1 618
Cattle	557	225
Dairy sales	392	405
Hogs	1 999	827
Poultry	220	160
Average yield of corn in bu.	43	48
Average yield of oats in bu.	45	46

1/Records from Warren County included for 1930.

Investments, Receipts, Expenses, and Earnings on 30 Bureau and Henry County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		26 948	29 261	21 742
Farm improvements		4 694	4 692	4 395
Livestock total		2 866	2 551	2 705
Horses		460	515	424
Cattle		1 241	807	1 253
Hogs		973	1 092	774
Sheep		41	21	78
Poultry		151	116	176
Machinery and equipment		1 771	1 553	1 823
Feed, grain and supplies		2 227	2 076	2 190
Total capital investment	$	$38 506	$40 133	$32 855
RECEIPTS AND NET INCREASES				
Livestock total		1 618	1 862	1 299
Horses		---	---	---
Cattle		225	59	184
Hogs		827	961	595
Sheep		1	4	---
Poultry		30	59	27
Egg sales		130	94	145
Dairy sales		405	685	348
Feed, grain and supplies		---	386	---
Labor off farm		29	22	32
Miscellaneous receipts		5	3	11
Total receipts & net increases	$	$ 1 652	$ 2 273	$ 1 342
EXPENSES AND NET DECREASES				
Farm improvements		233	183	237
Horses		43	28	44
Miscellaneous livestock decreases Sheep		---	---	6
Machinery and equipment		468	452	494
Feed, grain and supplies		239	---	719
Livestock expense		63	54	48
Crop expense		152	143	147
Hired labor		284	347	236
Taxes		335	348	308
Miscellaneous expenses		31	35	28
Total expenses & net decreases	$	$ 1 848	$ 1 590	$ 2 267
RECEIPTS LESS EXPENSES	$	$ -196	$ 683	$ -925
Total unpaid labor		780	920	743
Operator's labor		596	600	595
Family labor		184	320	148
Net income from investment and management		-976	-237	-1 668
DATE EARNED ON INVESTMENT	%	-2.53%	-.59%	-5.08%
Return to capital and operator's labor and management		-380	363	-1 073
5% of capital invested		1 925	2 007	1 643
LABOR AND MANAGEMENT WAGE	$	$-2 305	$-1 644	$-2 716

Chart for Studying the Efficiency of Various Parts of Your Business

Bureau and Henry Counties 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

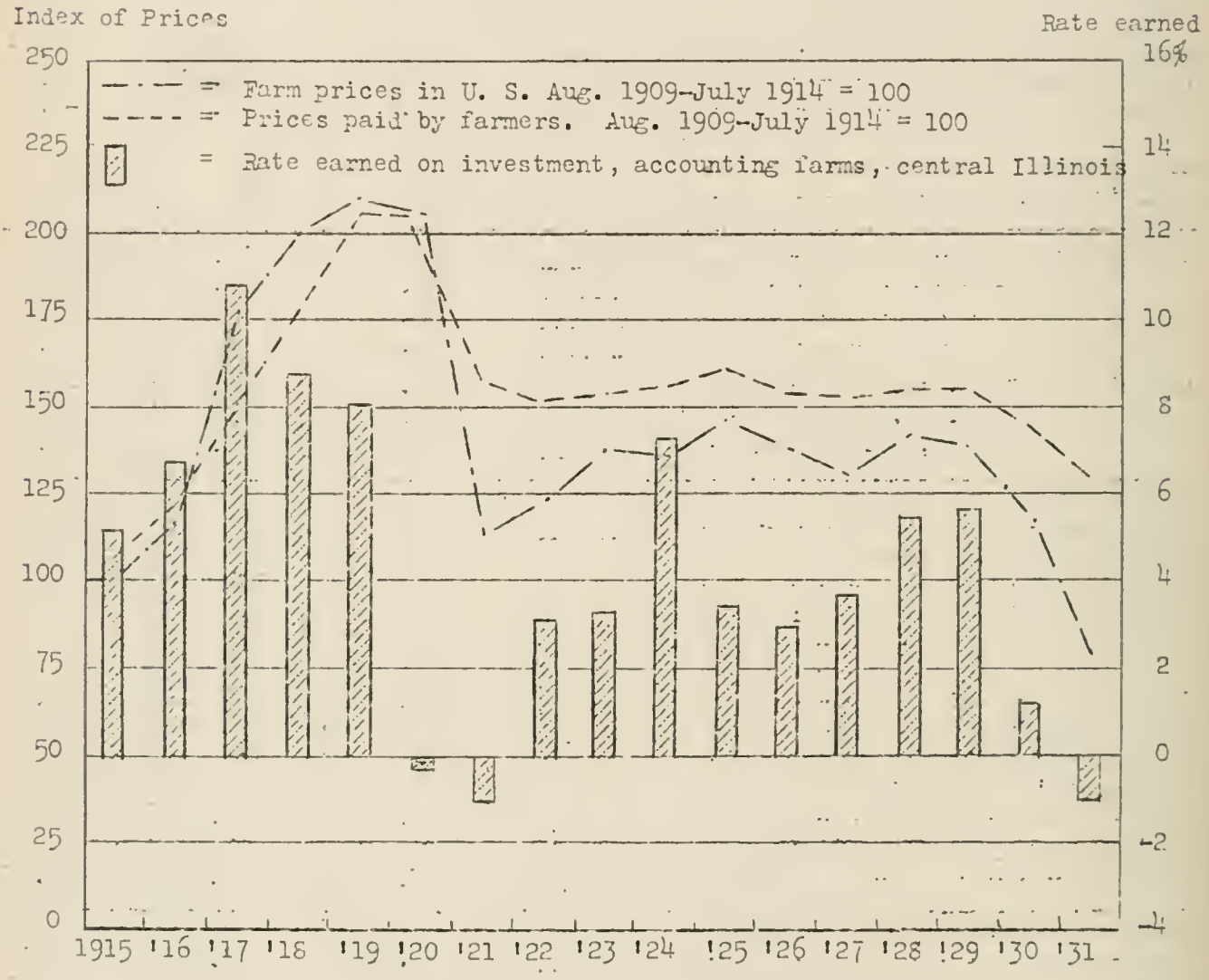
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--- income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Barley	Cattle	Poultry						Man labor	Operat-ing expense	Per acre	Per farm	
4.5	62	60	48	90	200	85	160	140	18	1.40	42	90	16	3 800	335
3.5	60	58	46	85	190	80	150	130	17	1.90	45	100	15	3 500	315
2.5	58	56	44	80	180	75	140	120	16	2.40	48	110	14	3 200	295
1.5	56	54	42	75	170	70	130	110	15	2.90	51	120	13	2 900	275
.5	54	52	40	70	160	65	120	100	14	3.40	54	130	12	2 600	255
-.5	52	50	38	65	150	60	110	90	13	3.90	57	140	11	2 300	235
-1.5	50	48	36	60	140	55	100	80	12	4.40	60	150	10	2 000	215
-2.5	48	46	34	55	130	50	90	70	11	4.90	63	160	9	1 700	195
-3.5	46	44	32	50	120	45	80	60	10	5.40	66	170	8	1 400	175
-4.5	44	42	30	45	110	40	70	50	9	5.90	69	180	7	1 100	155
-5.5	42	40	28	40	100	35	60	40	8	6 40	72	190	6	800	135
-6.5	40	38	26	35	90	30	50	30	7	6.90	75	200	5	500	115
-7.5	38	36	24	30	80	25	40	20	6	7.40	78	210	4	200	95
-8.5	36	34	22	25	70	20	30	10	5	7.90	81	220	3	---	75
-9.5	34	32	20	20	60	15	20	0	4	8.40	84	230	2	---	55

Factors Helping to Analyze the Farm Business on
30 Bureau and Henry County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	193.9	211.2	183.0
Percent of land area tillable		90.9	93.0	85.4
Gross receipts per acre	_____	8.52	10.76	7.33
Total expenses per acre		13.55	11.88	16.44
Net receipts per acre		-5.03	-1.12	-9.11
Value of land per acre		139	139	119
Total investment per acre		199	190	180
Acres in Corn	_____	85.0	97.1	73.2
Oats	_____	34.4	42.2	28.4
Wheat	_____	4.2	3.0	4.0
Barley	_____	8.2	3.1	9.4
Crop yields--Corn, bu. per acre	_____	47.9	46.8	47.8
Oats, bu. per acre	_____	46.5	44.9	43.9
Barley, bu. per acre	_____	33.6	33.1	33.3
Value of feed fed to productive livestock	_____	1 756	1 627	1 867
Returns per $100 of feed fed to productive livestock	_____	92	114	69
Returns per $100 invested in:				
Cattle	_____	55	90	48
Poultry	_____	127	149	119
Pigs weaned per litter	_____	5.8	5.6	5.3
Income per litter farrowed	_____	51	56	43
Dairy sales per dairy cow	_____	70	127	48
Investment in productive livestock per acre	_____	10.83	8.83	10.76
Receipts from productive livestock per acre	_____	8.34	8.82	7.07
Power and machinery cost per crop acre	_____	4.89	3.84	5.75
Machinery cost per crop acre	_____	3.12	2.67	3.77
Value of feed fed to horses	_____	222	171	216
Man labor cost per $100 gross income	_____	63	55	71
Man labor cost per acre	_____	5.34	5.89	5.17
Expenses per $100 gross income	_____	159	110	224
Farm improvements cost per acre	_____	1.20	.87	1.30
Farms with tractor	_____	60%	60%	30%
Excess of sales over cash expenses	_____	1 422	1 665	871
Decrease in inventory	_____	1 618	982	1 796

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON FORTY-SIX FARMS IN MERCER COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright and H. C. M. Case*

The average of farm earnings, on account keeping farms in Mercer County, was lower in 1931 than in 1930. In 1930 the average net income was $1129 per farm while in 1931 there was an average loss of $1283 per farm. In 1930, however, $898 per farm was deducted for the labor of the operator and the family as compared with $730 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per farm in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2794 in excess of cash expenses as compared with $1839 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*J. E. Harris, farm adviser in Mercer County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Mercer County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$4 296	$3 254	
Feed, grain and supplies	2 898	1 860	
Machinery	1 711	1 563	
Improvements	5 582	5 418	
Total inventory	$14 487	$12 095	
Decrease in inventory			$2 392
Total cash sales for 1931			$5 263
Total cash purchases for 1931			3 424
Excess of cash sales over cash purchases			1 839
Decrease in inventory			2 392
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)			553

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. There was a mark down in the value of livestock of $1042 per farm.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Mercer County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 46 farms included in this study ranged in size from 86 to 580 acres per farm. Eight were smaller than 140 acres and 7 were larger than 340 acres. The average size for all farms in the group was 240 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms 1/
60 - 99	1	300 - 339	7
100 - 139	7	340 - 379	1
140 - 179	10	380 - 419	3
180 - 219	7	420 - 459	0
220 - 259	6	460 - 499	2
260 - 299	1		

1/ One farm of 580 acres.

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 46 farms included in the present study, the value of bare land per acre was $50 to $109 on 18 farms; $110 to $169 on 21 farms, and $170 to $209 on 7 farms. The average value was $129 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $190 per acre.

As previously stated, the average for all farms indicated a loss of $1283 per farm after deducting $730 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2969 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. One of the farms netted the operator an income of $866; while the operators of 19 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	1	-1 750 to -2 249	5
749 to 250	0	-2 250 to -2 749	3
249 to -249	5	-2 750 to -3 249	2
-250 to -749	15	-3 250 to -3 749	1
-750 to -1 249	6	-3 750 to -4 249	1
-1 250 to -1 749	5	-4 250 to -4 749	2

A comparison of the 15 farms having the highest rate earned on investment with the 15 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 238 acres in size as compared with 250 for the less profitable group. The larger farms had a smaller percentage of the land area tillable but a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields, the low profit farms having the better yields. The least profitable farms grew 3.4 bushels more corn, .6 bushels more oats, and 14.0 bushels more barley per acre than did the most profitable farms. On the more profitable farms the closing inventory of feed and grain was $559 per farm less than the beginning inventory, while on the less profitable farms it was $1576 less than the beginning. The least profitable farms had 4027 bushels of corn per farm on hand at the beginning of the year and 3917 bushels at the end of the year as compared with 2488 bushels and 3599 bushels respectively for the most profitable farms. On the least profitable farms $3724 of feed was fed per farm to productive livestock as compared with $2195 per farm on the most profitable farms.

The investment per farm in livestock was $1635 less on the most profitable farms than on the least profitable and the income was $500 per farm less while at the same time the decrease from the feed and grain account was smaller by $2079. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $125 for the more profitable farms as compared with $87 for the less profitable farms. There were 6.5 pigs weaned per litter on the more profitable farms but only 6.3 on the less profitable farms. On the most profitable farms the gross receipts per acre were $11.79 as compared with $13.15 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $12.70 as compared with $22.69 for the least profitable group. The cost of power and machinery was 90 cents per crop acre lower for the more successful farms, and the man labor cost was 67 cents an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $2645 per farm in the feed and grain account, whereas the more profitable farms had a loss of $566 per farm.

After deducting expenses and net decreases from income and net increases there remained a net loss of 91 cents per acre for the more profitable farms as compared with a loss of $9.54 per acre for the less profitable group. The lower expenses per acre were due to savings made on the more profitable farms in the feed, machinery, labor and improvements accounts. The chief difference, however, between the two groups of farms was due to the decrease in inventory of $1531 per farm for the most profitable and $3246 per farm for the least profitable farms. The severe drop in inventory confused the analysis of the 1931 records and gave results quite different from normal.

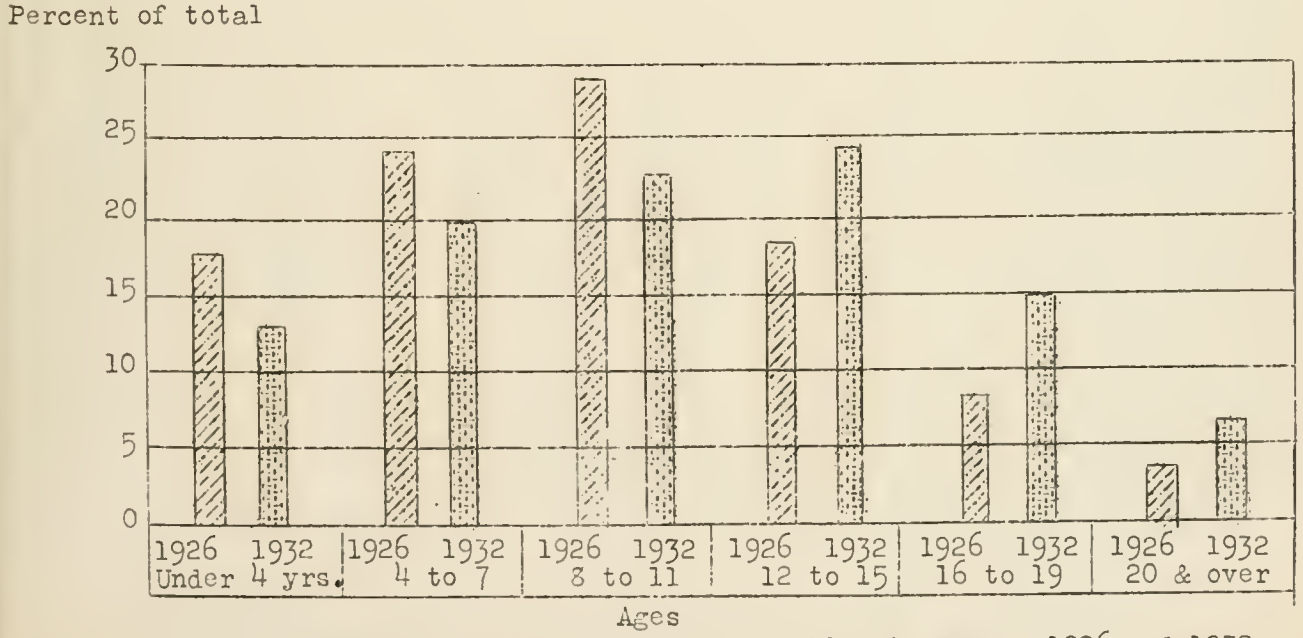
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Mercer County for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931, although the average land value was $9 per acre higher in 1930. The income from livestock in 1931 was about one-half that of the year previous, while the operating costs per acre were higher due to a larger decrease in the feed and grain account.

Comparison of Earnings and Investments on Accounting Farms in Mercer County for 1928-1931

Items	1928[1]	1929[2]	1930	1931
Number of farms	30	30	40	46
Average size of farms, acres	208	248	260	240
Average rate earned, to pay for management, risk and capital	5.9%	6.5%	2.1%	-2.8%
Average labor and management wage	$1151	$1506	$-774	$-2969
Gross income per acre	28.10	27.36	20.68	11.74
Operating cost per acre	14.41	13.81	16.34	17.09
Average value of land per acre	164	143	138	129
Total investment per acre	232	208	202	190
Investment per farm in:				
Total livestock	3953	5046	5416	4296
Cattle	1496	2127	2640	1665
Hogs	1587	1940	1860	1872
Poultry	164	171	149	130
Gross income per farm	5846	6786	5374	2815
Income per farm from:				
Crops	723	---	---	---
Miscellaneous income	70	39	35	44
Total livestock	5053	6747	5339	2771
Cattle	1149	1658	1156	490
Dairy sales	574	489	333	197
Hogs	2894	4117	3578	1872
Poultry	316	396	238	174
Average yield of corn in bu.	56	47	49	51
Average yield of oats in bu.	43	42	41	39

1/Records from Knox and Warren counties included for 1928.
2/Records from Warren county included for 1929.

Investments, Receipts, Expenses, and Earnings on
46 Mercer County Farms, 1931

Items	Your farm	Average of 46 farms	15 most profitable farms	15 least profitable farms
CAPITAL INVESTMENTS				
Land		31 029	28 056	33 019
Farm improvements		5 582	4 595	6 773
Livestock total		4 296	3 843	5 478
Horses		496	422	631
Cattle		1 665	1 887	1 938
Hogs		1 872	1 386	2 623
Sheep		133	26	182
Poultry		130	122	104
Machinery and equipment		1 711	1 527	2 042
Feed, grain and supplies		2 898	2 140	3 406
Total capital investment	$	$45 516	$40 161	$50 718
RECEIPTS AND NET INCREASES				
Livestock total		2 771	2 746	3 246
Horses		---	---	---
Cattle		490	678	509
Hogs		1 872	1 656	2 399
Sheep		38	3	59
Poultry		75	69	77
Egg sales		99	112	83
Dairy sales		197	228	119
Feed, grain and supplies		---	---	---
Labor off farm		40	55	30
Miscellaneous receipts		4	1	8
Total receipts & net increases	$	$ 2 815	$ 2 802	$ 3 284
EXPENSES AND NET DECREASES				
Farm improvements		326	256	418
Horses		48	34	53
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		471	475	515
Feed, grain and supplies		1 444	566	2 645
Livestock expense		82	67	101
Crop expense		154	114	161
Hired labor		413	280	598
Taxes		401	374	442
Miscellaneous expenses		29	28	31
Total expenses & net decreases	$	$ 3 368	$ 2 194	$ 4 954
RECEIPTS LESS EXPENSES	$	$ -553	$ 608	$-1 680
Total unpaid labor		730	825	704
Operator's labor		590	597	600
Family labor		140	228	104
Net income from investment and management		-1 283	-217	-2 384
RATE EARNED ON INVESTMENT	%	-2.82%	-.54%	-4.70%
Return to capital and operator's labor and management		-693	380	-1 784
5% of capital invested		2 276	2 008	2 536
LABOR AND MANAGEMENT WAGE	$	$-2 969	$-1 628	$-4 320

Chart for Studying the Efficiency of Various Parts of Your Business
Mercer County, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 46 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

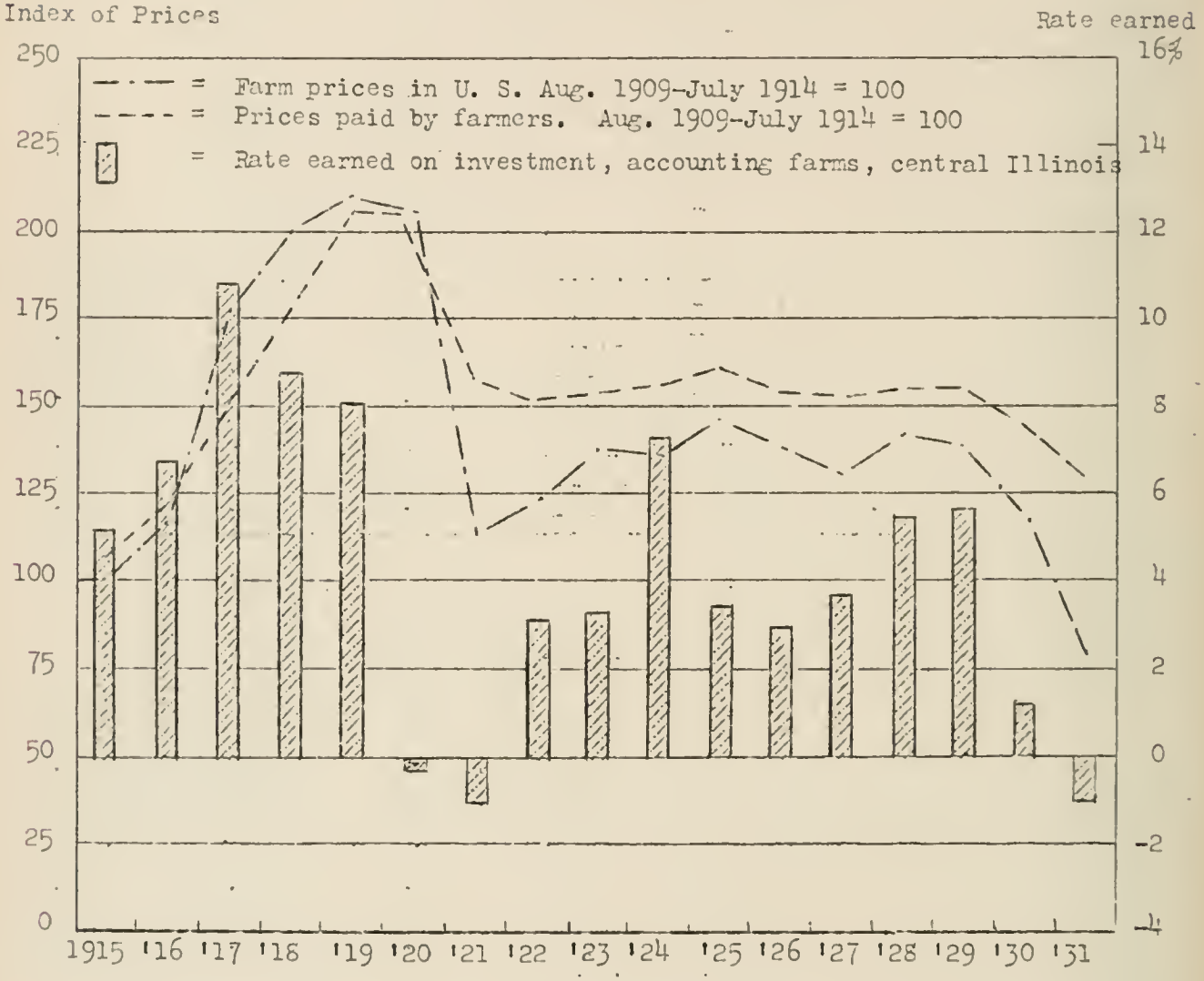
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Barley	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
4.2	65	53	44	75	290	90	135	110	21	.65	19	75	19	5 600	380
3.2	63	51	42	70	270	85	130	100	20	1.15	22	85	18	5 200	360
2.2	61	49	40	65	250	80	125	90	19	1.65	25	95	17	4 800	340
1.2	59	47	38	60	230	75	120	80	18	2.15	28	105	16	4 400	320
.2	57	45	36	55	210	70	115	70	17	2.65	31	115	15	4 000	300
-.8	55	43	34	50	190	65	110	60	16	3.15	34	125	14	3 600	280
-1.8	53	41	32	45	170	60	105	50	15	3.65	37	135	13	3 200	260
-2.8	51	39	30	40	150	55	100	40	14	4.15	40	145	12	2 800	240
-3.8	49	37	28	35	130	50	95	30	13	4.65	43	155	11	2 400	220
-4.8	47	35	26	30	110	45	90	20	12	5.15	46	165	10	2 000	200
-5.8	45	33	24	25	90	40	85	10	11	5.65	49	175	9	1 600	180
-6.8	43	31	22	20	70	35	80	0	10	6.15	52	185	8	1 200	160
-7.8	41	29	20	15	50	30	75	---	9	6.65	55	195	7	800	140
-8.8	39	27	18	10	30	25	70	---	8	7.15	58	205	6	400	120
-9.8	37	25	16	5	10	20	65	---	7	7.65	61	215	5	0	100

Factors Helping to Analyze the Farm Business on
46 Mercer County Farms in 1931

Items	Your farm	Average of 46 farms	15 most profitable farms	15 least profitable farms
Size of farm--acres		239.8	237.6	249.8
Percent of land area tillable		83.2	86.0	83.6
Gross receipts per acre		11.74	11.79	13.15
Total expenses per acre		17.09	12.70	22.69
Net receipts per acre		-5.35	-.91	-9.54
Value of land per acre		129	118	132
Total investment per acre		190	169	203
Acres in Corn		92.7	97.4	88.2
Oats		33.5	29.3	28.4
Barley		8.4	8.8	10.7
Soybeans		2.3	3.0	1.3
Crop yields--Corn, bu. per acre		50.9	49.0	52.4
Oats, bu. per acre		39.3	42.4	43.0
Barley, bu. per acre		30.3	22.9	36.9
Value of feed fed to productive livestock		2 807	2 195	3 724
Returns per $100 of feed fed to productive livestock		99	125	87
Returns per $100 invested in:				
Cattle		42	51	32
Poultry		153	158	176
Pigs weaned per litter		6.3	6.5	6.3
Income per litter farrowed		55	56	59
Dairy sales per dairy cow		39	42	37
Investment in productive livestock per acre		13.78	12.93	16.77
Receipts from productive livestock per acre		11.55	11.56	12.99
Power and machinery cost per crop acre		4.15	4.00	4.90
Machinery cost per crop acre		2.86	2.82	3.36
Value of feed fed to horses		165	163	183
Man labor cost per $100 gross income		39	37	39
Man labor cost per acre		4.60	4.42	5.09
Expenses per $100 gross income		146	108	173
Farm improvements cost per acre		1.36	1.08	1.67
Farms with tractor		63%	60%	75%
Excess of sales over cash expenses		1 839	2 139	1 566
Decrease in inventory		2 392	1 531	3 246

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN WARREN COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright and H. C. M. Case*

The average of farm earnings, on account keeping farms in Warren County, was lower in 1931 than in 1930. In 1930 the average net income was $706 per farm while in 1931 there was an average loss of $451 per farm. In 1930, however, $889 per farm was deducted for the labor of the operator and the family as compared with $729 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2,907 in excess of cash expenses as compared with $1,669 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*A. A. Olsen, farm adviser in Warren County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 30 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$3 612	$2 821
Feed, grain and supplies	2 084	1 631
Machinery	1 711	1 676
Improvements	4 423	4 311
Total inventory	$11 830	$10 439
Decrease in inventory		-$1 391

Total cash sales for 1931	-$4 591
Total cash purchases for 1931	- 2 922
Excess of cash sales over cash purchases	- 1 669
Decrease in inventory	- 1 391
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	278

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Warren County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 80 to 475 acres per farm. Four were smaller than 140 acres and 4 were larger than 380 acres. The average size for all farms in the group was 242 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	300 - 339	2
100 - 139	3	340 - 379	0
140 - 179	3	380 - 419	2
180 - 219	5	420 - 459	1
220 - 259	7	460 - 499	1
260 - 299	5		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $70 to $109 on 11 farms; $110 to $149 on 14 farms, and $150 to $169 on 4 farms. One farm was valued at $191 per acre. The average value was $115 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $164 per acre.

As previously stated, the average for all farms indicated a loss of $451 per farm after deducting $729 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1,845 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Seven of the farms netted their operators incomes of more than $249; while the operators of 6 farms sustained losses of more than $1,249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	2	-750 to -1 249	6
1 249 to 750	3	-1 250 to -1 749	4
749 to 250	2	-1 750 to -2 249	1
249 to -249	4	-2 250 to -2 749	0
-250 to -749	7	-2 750 to -3 249	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 272 acres in size as compared with 226 for the less profitable group. The larger farms had a smaller percentage of the land area tillable but a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew .8 bushels more corn, 1.4 bushels more oats, and 4.4 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $126 per farm less than the beginning inventory, while on the less profitable farms it was $752 less than the beginning.

The investment per farm in livestock was $947 more on the most profitable farms than on the least profitable and the income was $653 per farm higher while at the same time the increase from the feed and grain account was larger by $1181. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $149 for the more profitable farms as compared with $93 for the less profitable farms. There were 6.2 pigs weaned per litter on the more profitable farms but only 5.7 on the less profitable farms. Dairy sales were $16 per cow higher and returns per $100 invested in poultry $67 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.86 as compared with $9.71 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.68 as compared with $16.11 for the least profitable group. The cost of power and machinery was $1.46 per crop acre lower for the more successful farms, and the man labor cost was 77 cents an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $1,056 per farm or $4.67 per acre in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.18 per acre for the more profitable farms as compared with a loss of $6.40 per acre for the less profitable group. For the first group this was a return of 1.29% on the capital invested in the business and for the second group a loss of 3.95%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the feed, machinery, labor and improvements accounts.

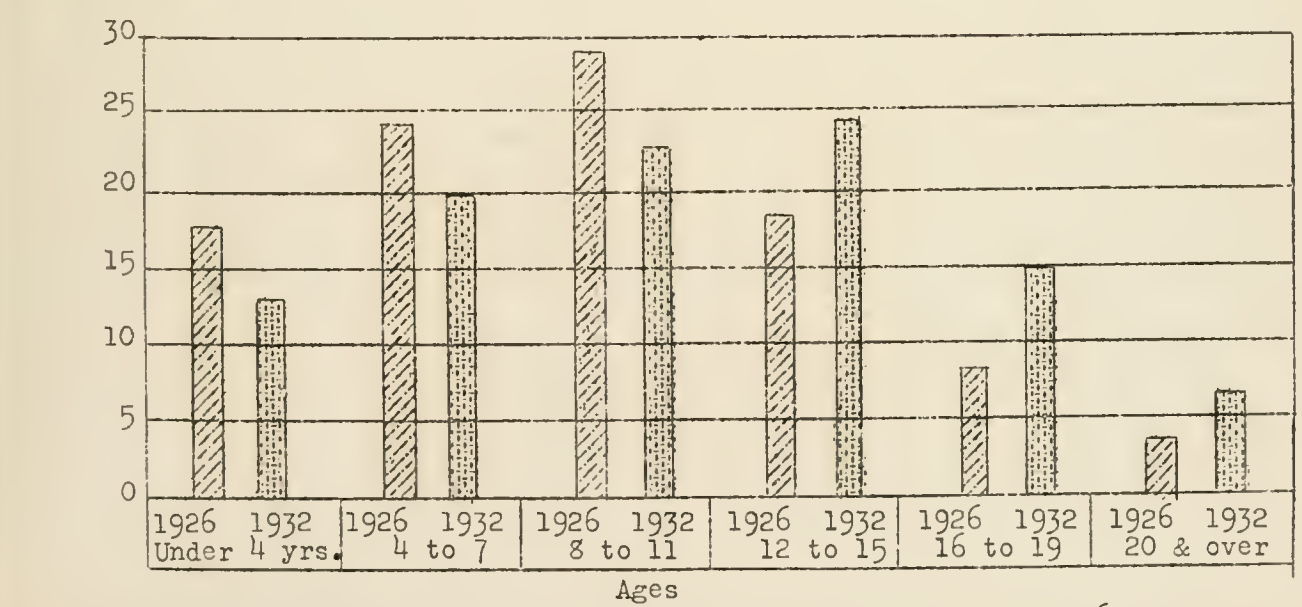
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Two-Year Period

Some comparative investment and earning data on accounting farms in Warren County for 1930 and 1931 are shown in the following table. The rate earned dropped sharply in 1931 in spite of a decrease of $26 per acre in the value of the bare land. Although the farms averaged 30 acres larger in 1931, the gross income was smaller by $1,118 per farm. The expenses per acre were less in 1931 in spite of the fact that there was a decrease of $445 per farm in the feed and grain account this year as compared with an increase of $232 per farm in 1930.

Comparison of Earnings and Investments on Accounting Farms in Warren County for 1930-1931

Items	1930[1]	1931
Number of farms	43	30
Average size of farms, acres	212	242
Average rate earned, to pay for management, risk and capital	1.6%	-1.1%
Average labor and management wage	$-722	$-1 845
Gross income per acre	16.23	9.58
Operating cost per acre	12.90	11.44
Average value of land per acre	141	115
Total investment per acre	203	164
Investment per farm in:		
Total livestock	3 948	3 612
Cattle	1 886	1 725
Hogs	1 296	1 206
Poultry	146	130
Gross income per farm	3 440	2 322
Income per farm from:		
Crops	232	---
Miscellaneous income	26	25
Total livestock	3 182	2 297
Cattle	557	584
Dairy sales	392	216
Hogs	1 999	1 352
Poultry	220	139
Average yield of corn in bu.	43	49
Average yield of oats in bu.	45	47

1/Some records from Bureau and Henry counties included for 1930.

Investments, Receipts, Expenses, and Earnings on
30 Warren County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		27 915	33 853	24 256
Farm improvements		4 423	4 275	4 916
Livestock total	_____	3 612	4 268	3 321
Horses		502	653	405
Cattle		1 725	2 077	1 598
Hogs		1 206	1 288	1 211
Sheep		49	59	11
Poultry		130	191	96
Machinery and equipment		1 711	1 608	1 858
Feed, grain and supplies		2 084	1 824	2 289
Total capital investment	$_____	$39 745	$45 828	$36 640
RECEIPTS AND NET INCREASES				
Livestock total	_____	2 297	2 821	2 168
Horses		---	17	---
Cattle		584	882	635
Hogs		1 352	1 465	1 306
Sheep		6	---	5
Poultry		41	101	15
Egg sales		98	165	46
Dairy sales		216	191	161
Feed, grain and supplies		---	125	---
Labor off farm		20	5	26
Miscellaneous receipts		5	---	2
Total receipts & net increases	$_____	$ 2 322	$ 2 951	$ 2 196
EXPENSES AND NET DECREASES				
Farm improvements		221	197	310
Horses		11	---	19
Miscellaneous livestock decreases Sheep		---	4	---
Machinery and equipment		426	384	549
Feed, grain and supplies		445	---	1 056
Livestock expense		101	97	67
Crop expense		139	149	161
Hired labor		341	367	414
Taxes		336	377	327
Miscellaneous expenses		24	24	22
Total expenses & net decreases	$_____	$ 2 044	$ 1 599	$ 2 925
RECEIPTS LESS EXPENSES	$_____	$ 278	$ 1 352	$ -729
Total unpaid labor		729	759	717
Operator's labor		593	600	580
Family labor		136	159	137
Net income from investment and management		-451	593	-1 446
RATE EARNED ON INVESTMENT	_____%	-1.13%	1.29%	-3.95%
Return to capital and operator's labor and management		142	1 193	-866
5% of capital invested		1 987	2 291	1 832
LABOR AND MANAGEMENT WAGE	$_____	$-1 845	$-1 098	$-2 698

Chart for Studying the Efficiency of Various Parts of Your Business
Warren County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

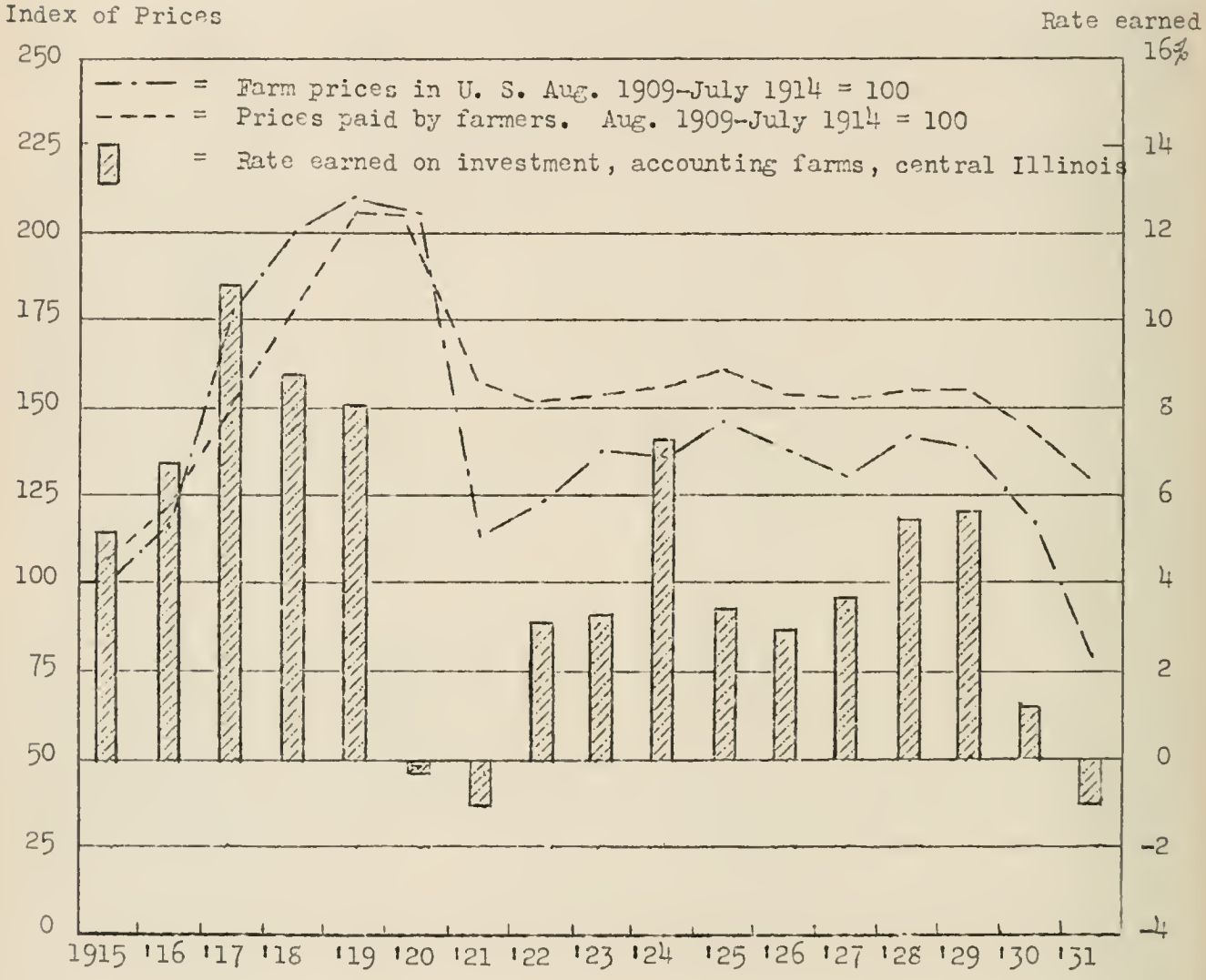
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
6.0	63	61	37	120	260	90	150	115	25	.20	10	85	24	5 800	380
5.0	61	59	35	110	240	85	145	105	23	.70	15	90	22	5 300	360
4.0	59	57	33	100	220	80	140	95	21	1.20	20	95	20	4 800	340
3.0	57	55	31	90	200	75	135	85	19	1.70	25	100	18	4 300	320
2.0	55	53	29	80	180	70	130	75	17	2.20	30	105	16	3 800	300
1.0	53	51	27	70	160	65	125	65	15	2.70	35	110	14	3 300	280
.0	51	49	25	60	140	60	120	55	13	3.20	40	115	12	2 800	260
-1.0	49	47	23	59	129	55	115	45	11	3.70	45	120	10	2 300	240
-2.0	47	45	21	40	100	50	110	35	9	4.20	50	125	8	1 800	220
-3.0	45	43	19	30	80	45	105	25	7	4.70	55	130	6	1 300	200
-4.0	43	41	17	20	60	40	100	15	5	5.20	60	135	4	800	180
-5.0	41	39	15	10	40	35	95	5	3	5.70	65	140	2	300	160
-6.0	39	37	13	0	20	30	90	0	1	6.20	70	145	0	---	140
-7.0	37	35	11	--	0	25	85	--	--	6.70	75	150	--	---	120
-8.0	35	33	9	--	--	20	80	--	--	7.20	80	155	--	---	100

Factors Helping to Analyze the Farm Business on
30 Warren County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	242.3	271.8	226.1
Percent of land area tillable		80.0	77.3	82.3
Gross receipts per acre	_____	9.58	10.86	9.71
Total expenses per acre		11.44	8.68	16.11
Net receipts per acre		-1.86	2.18	-6.40
Value of land per acre		115	125	107
Total investment per acre		164	169	162
Acres in Corn	_____	95.0	108.4	91.6
Oats	_____	35.2	40.0	38.1
Wheat	_____	9.8	9.0	5.8
Soybeans	_____	6.3	5.0	4.0
Crop yields--Corn, bu. per acre	_____	49.3	49.8	49.0
Oats, bu. per acre	_____	46.9	48.1	46.7
Wheat, bu. per acre	_____	23.1	21.9	17.5
Value of feed fed to productive livestock	_____	2 030	1 877	2 335
Returns per $100 of feed fed to productive livestock	_____	113	149	93
Returns per $100 invested in:				
Cattle	_____	51	54	55
Poultry	_____	118	144	77
Pigs weaned per litter	_____	6.0	6.2	5.7
Income per litter farrowed	_____	53	63	45
Dairy sales per dairy cow	_____	43	48	32
Investment in productive livestock per acre	_____	11.30	12.26	10.97
Receipts from productive livestock per acre	_____	9.48	10.30	9.59
Power and machinery cost per crop acre	_____	3.73	3.21	4.67
Machinery cost per crop acre	_____	2.50	2.08	3.38
Value of feed fed to horses	_____	199	226	192
Man labor cost per $100 gross income	_____	45	38	50
Man labor cost per acre	_____	4.33	4.12	4.89
Expenses per $100 gross income	_____	119	80	166
Farm improvements cost per acre	_____	.91	.72	1.37
Farms with tractor	_____	67%	80%	70%
Excess of sales over cash expenses	_____	1 669	2 262	1 049
Decrease in inventory	_____	1 391	910	1 778

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

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ANNUAL FARM BUSINESS REPORT ON FIFTY FARMS IN HENDERSON COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Henderson County, was lower in 1931 than in 1930. In 1930 the average net income was $731 per farm while in 1931 there was an average loss of $760 per farm. In 1930, however, $847 per farm was deducted for the labor of the operator and the family as compared with $701 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2143 in excess of cash expenses as compared with $1277 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*E. D. Walker, farm adviser in Henderson County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Henderson County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$2 458	$1 709
Feed, grain and supplies	1 471	1 076
Machinery	1 274	1 146
Improvements	3 207	3 143
Total inventory	8 410	7 074
Decrease in inventory		$1 336

Total cash sales for 1931	$3 016
Total cash purchases for 1931	1 739
Excess of cash sales over cash purchases	1 277
Decrease in inventory	1 336
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)	59

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Henderson County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 50 farms included in this study ranged in size from 80 to 400 acres per farm. Seven were smaller than 140 acres and 3 were larger than 340 acres. The average size for all farms in the group was 202 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	3	220 - 259	10
100 - 139	4	260 - 299	5
140 - 179	16	300 - 339	2
180 - 219	7	340 - 379	1
		380 - 419	2

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 50 farms included in the present study, the value of bare land per acre was $30 to $69 on 10 farms; $70 to $129 on 34 farms, and $130 to $169 on 6 farms. The average value was $95 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $137 per acre.

As previously stated, the average for all farms indicated a loss of $760 per farm after deducting $701 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1555 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Two of the farms netted their operators incomes of more than $249; while the operators of 10 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	1	- 750 to -1 249	12
1 249 to 750	1	-1 250 to -1 749	6
749 to 250	0	-1 750 to -2 249	0
249 to -249	9	-2 250 to -2 749	2
-250 to -749	17	-2 750 to -3 249	2

A comparison of the 17 farms having the highest rate earned on investment with the 17 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 228 acres in size as compared with 177 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 5.1 bushels more corn and 4.5 bushels more oats per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $312 per farm lower than the beginning inventory, while on the less profitable farms it was $502 less than the beginning inventory.

The investment per farm in livestock was $104 more on the most profitable farms than on the least profitable and the income was $604 per farm higher while at the same time the increase from the feed and grain account was larger by $623. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $105 for the more profitable farms as compared with $74 for the less profitable farms. There were 5.8 pigs weaned per litter on the more profitable farms and 6.2 on the less profitable farms, yet the returns per litter were $46 and $35 respectively. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $7.55 as compared with $5.67 per acre for the least profitable farms.

The average operating expense of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $7.80 as compared with $13.96 for the least profitable group. The cost of power and machinery was $2.01 per crop acre lower for the more successful farms, and the man labor cost was $1.46 an acre lower. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $539 per farm in the feed and grain account, as compared with a gain of $84 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net decrease of $.25 per acre for the more profitable farms as compared with a loss of $8.29 per acre for the less profitable group. For the first group this was a loss of .18% on the capital invested in the business and for the second group a loss of 6.32%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor, feed and improvements accounts.

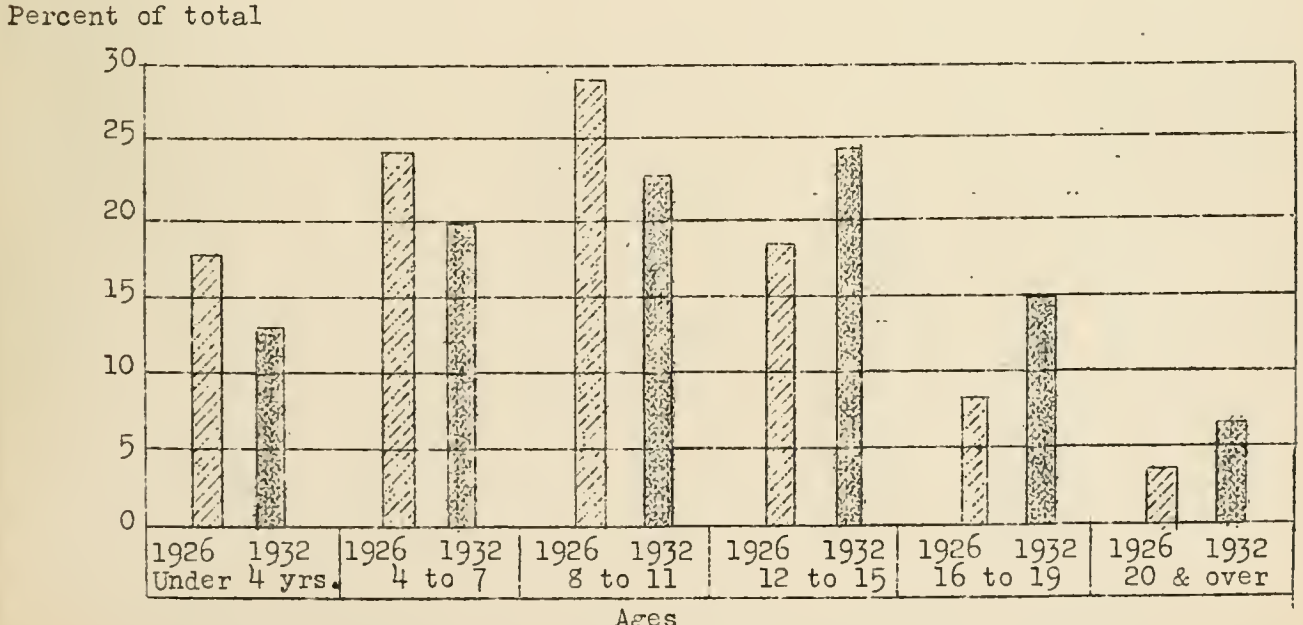
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Henderson County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $14 per acre higher in 1930. The gross income per acre was lower in 1931 than in 1930 but the operating cost was higher, due to the decrease in the grain account.

Comparison of Earnings and Investments on Accounting Farms in Henderson County for 1927-1931

Items	1927	1928	1929	1930	1931
Number of farms	30	30	30	62	50
Average size of farms, acres	245	250	239	224	202
Average rate earned, to pay for management, risk, and capital	4.1%	6.9%	5.7%	2.1%	-2.7%
Average labor and management wage	$239	$1592	$1042	$-271	$-1555
Gross income per acre	19.51	23.34	21.96	13.47	7.02
Operating cost per acre	11.85	10.92	11.43	10.21	10.78
Average value of land per acre	134	132	135	109	95
Total investment per acre	187	179	184	153	137
Investment per farm in:					
Total livestock	4491	3718	3570	2898	2458
Cattle	2068	1693	1662	1123	806
Hogs	1532	1189	1118	1012	1016
Poultry	105	128	139	126	98
Gross income per farm	4790	5825	5249	3021	1421
Income per farm from:					
Crops	822	921	1088	387	--
Miscellaneous income	33	50	61	68	31
Total livestock	3935	4854	4100	2566	1390
Cattle	1655	1685	794	270	181
Dairy sales	214	313	330	209	150
Hogs	1828	2537	2691	1940	924
Poultry	155	220	214	123	114
Average yield of corn in bu.	38	51	45	37	46
Average yield of oats in bu.	33	48	40	35	44

Investments, Receipts, Expenses, and Earnings on
50 Henderson County Farms, 1931

Items	Your farm	Average of 50 farms	17 most profitable farms	17 least profitable farms
CAPITAL INVESTMENTS				
Land		19 285	24 383	15 343
Farm improvements		3 207	3 270	2 961
Livestock total		2 458	2 434	2 330
Horses		420	388	423
Cattle		806	663	738
Hogs		1 016	1 178	981
Sheep		118	104	85
Poultry		98	101	103
Machinery and equipment		1 274	1 471	1 237
Feed, grain and supplies		1 471	1 697	1 388
Total capital investment	$	$27 695	$33 255	$23 259
RECEIPTS AND NET INCREASES				
Livestock total		1 390	1 587	983
Horses		--	--	--
Cattle		181	162	103
Hogs		924	1 158	579
Sheep		21	24	10
Poultry		50	61	68
Egg sales		64	62	78
Dairy sales		150	120	145
Feed, grain and supplies		--	84	--
Labor off farm		29	46	23
Miscellaneous receipts		2	5	--
Total receipts & net increases	$	$ 1 421	$ 1 722	$ 1 006
EXPENSES AND NET DECREASES				
Farm improvements		148	100	174
Horses		49	32	68
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		326	312	352
Feed, grain and supplies		311	--	539
Livestock expense		37	34	29
Crop expense		104	113	103
Hired labor		187	176	147
Taxes		292	312	276
Miscellaneous expenses		26	26	26
Total expenses & net decreases	$	$ 1 480	$ 1 105	$ 1 714
RECEIPTS LESS EXPENSES	$	$ -59	$ 617	$ -708
Total unpaid labor		701	675	762
Operator's labor		590	594	585
Family labor		111	81	177
Net income from investment and management		-760	-58	-1 470
RATE EARNED ON INVESTMENT	%	-2.74%	-.18%	-6.32%
Return to capital and operator's labor and management		-170	536	-885
5% of capital invested		1 385	1 663	1 163
LABOR AND MANAGEMENT WAGE	$	$-1 555	$-1 127	$-2 048

Chart for Studying the Efficiency of Various Parts of Your Business,
Henderson County, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 50 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

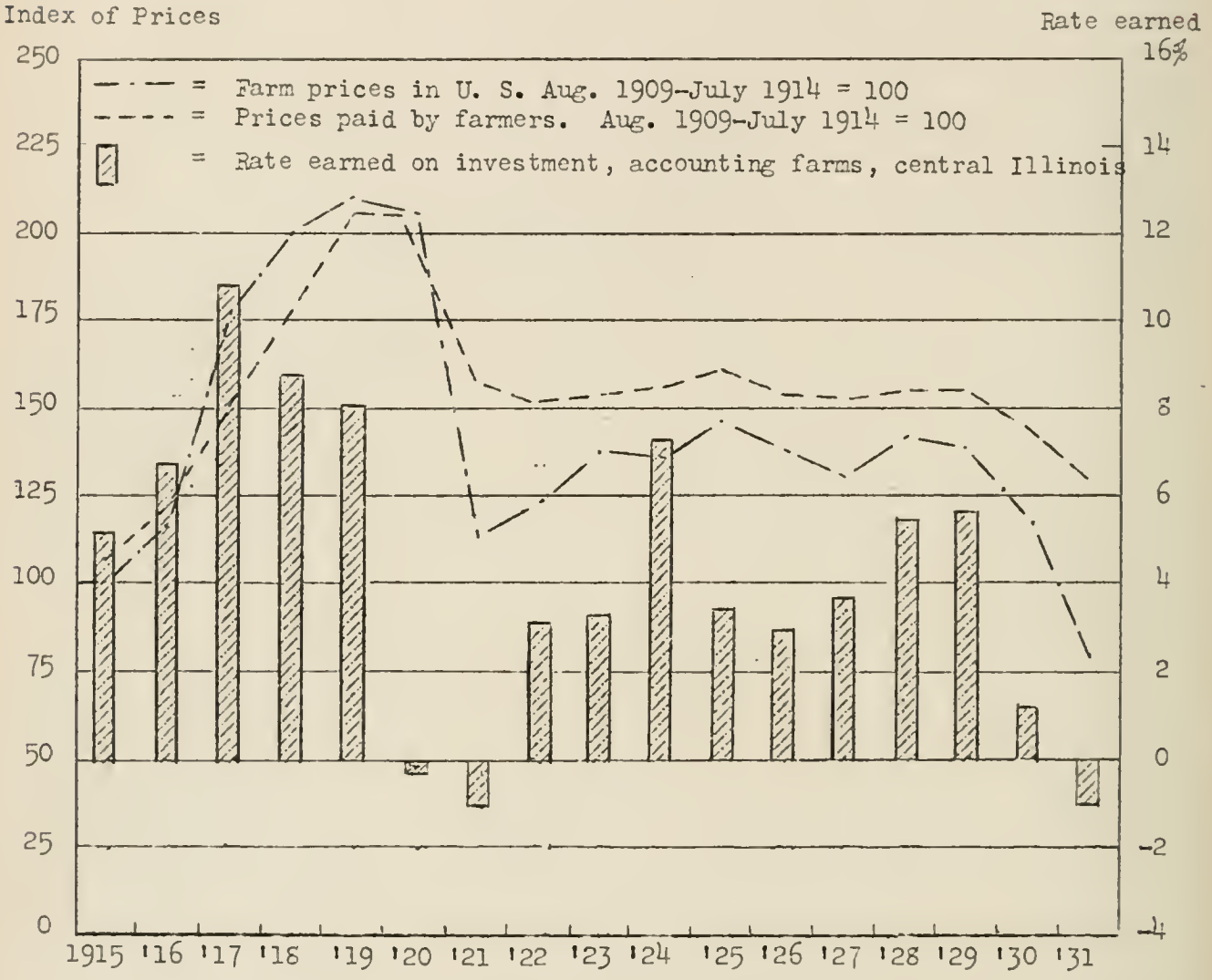
Rate earned	Bushels per acre of		Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
4.25	60	58	80	200	75	130	70	15	.20	39	80	14	3 500	340
3.25	58	56	75	190	70	125	65	14	.70	42	90	13	3 200	320
2.25	56	54	70	180	65	120	60	13	1.20	45	100	12	2 900	300
1.25	54	52	65	170	60	115	55	12	1.70	48	110	11	2 600	280
.25	52	50	60	160	50	110	50	11	2.20	51	120	10	2 300	260
- .75	50	48	55	150	50	105	45	10	2.70	54	130	9	2 000	240
-1.75	48	46	50	140	45	100	40	9	3.20	57	140	8	1 700	220
-2.75	46	44	45	130	40	95	35	8	3.70	60	150	7	1 400	200
-3.75	44	42	40	120	35	90	30	7	4.20	63	160	6	1 100	180
-4.75	42	40	35	110	30	85	25	6	4.70	66	170	5	800	160
-5.75	40	38	30	100	25	80	20	5	5.20	69	180	4	500	140
-6.75	38	36	25	90	20	75	15	4	5.70	72	190	3	200	120
-7.75	36	34	20	80	15	70	10	3	6.20	75	200	2	--	100
-8.75	34	32	15	70	10	65	5	2	6.70	78	210	1	--	80
-9.75	32	30	10	60	5	60	0	1	7.20	81	220	0	--	60

Factors Helping to Analyze the Farm Business on
50 Henderson County Farms in 1931

Items	Your farm	Average of 50 farms	17 most profitable farms	17 least profitable farms
Size of farm--acres	_____	202.4	228.2	177.4
Percent of land area tillable		81.5	89.3	75.6
Gross receipts per acre	_____	7.02	7.55	5.37
Total expenses per acre		10.78	7.80	13.96
Net receipts per acre		-3.76	-.25	-8.29
Value of land per acre		95	107	86
Total investment per acre		137	146	131
Acres in Corn	_____	83.2	105.3	70.2
Oats	_____	30.6	43.1	17.5
Wheat	_____	5.5	5.1	5.6
Soybeans	_____	4.2	7.7	3.5
Crop yields--Corn, bu. per acre	_____	45.7	47.5	42.4
Oats, bu. per acre	_____	44.4	47.3	42.8
Value of feed fed to productive livestock	_____	1 463	1 508	1 322
Returns per $100 of feed fed to productive livestock	_____	95	105	74
Returns per $100 invested in:				
Cattle	_____	44	44	36
Poultry	_____	130	134	158
Pigs weaned per litter	_____	6.1	5.8	6.2
Incomes per litter farrowed	_____	42	46	35
Dairy sales per dairy cow	_____	36	27	36
Investment in productive livestock per acre	_____	8.32	7.52	8.64
Receipts from productive livestock per acre	_____	6.87	6.95	5.54
Power and machinery cost per crop acre	_____	3.68	2.87	4.88
Machinery cost per crop acre	_____	2.24	1.75	2.97
Value of feed fed to horses	_____	160	167	159
Man labor cost per $100 gross income	_____	60	47	88
Man labor cost per acre	_____	4.24	3.53	4.99
Expenses per $100 gross income	_____	153	103	246
Farm improvements cost per acre	_____	.73	.44	.98
Farms with tractor	_____	54%	65%	59%
Excess of sales over cash expenses	_____	1 277	1 742	876
Decrease in inventory	_____	1 336	1 125	1 584

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-NINE FARMS IN MCDONOUGH COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. E. Wills, and H. C. M. Case*

The average of farm earnings, on account keeping farms in McDonough County, was lower in 1931 than in 1930. In 1930 the average net income was $892 per farm while in 1931 there was an average loss of $662 per farm. In 1930, however, $909 per farm was deducted for the labor of the operator and the family as compared with $713 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per acre in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2725 in excess of cash expenses as compared with $1803 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*R. C. Doneghue, farm adviser in McDonough County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for McDonough County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$2 842	$1 947
Feed, grain and supplies	1 978	1 425
Machinery	1 573	1 440
Improvements	4 184	4 013
Total inventory	10 577	8 825
Decrease in inventory		$1 752
Total cash sales for 1931		$4 417
Total cash purchases for 1931		2 614
Excess of cash sales over cash purchases		$1 803
Decrease in inventory		1 752
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		51

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in McDonough County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 39 farms included in this study ranged in size from 80 to 402 acres per farm. Three were smaller than 100 acres and 8 were larger than 300 acres. The average size for all farms in the group was 216 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	3	260 - 299	4
100 - 139	3	300 - 339	3
140 - 179	12	340 - 379	4
180 - 219	4	380 - 419	1
220 - 259	5		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 39 farms included in the present study, the value of bare land per acre was $50 to $109 on 8 farms, $110 to $169 on 27 farms, and $170 to $209 on 4 farms. The average value was $127 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $176 per acre.

As previously stated, the average for all farms indicated a loss of $662 per farm after deducting $713 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1979 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $249; while the operators of 7 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	1	- 750 to -1 249	10
749 to 250	3	-1 250 to -1 749	4
249 to -249	7	-1 750 to -2 249	2
-250 to -749	11	-2 250 to -2 749	0
		-2 750 to -3 249	1

A comparison of the 13 farms having the highest rate earned on investment with the 13 farms having the lowest rate earned on investment gives a further picture of the variations in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 218 acres in size as compared with 202 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The more profitable farms grew more acres of corn and soybeans but less acres of oats and wheat than did the less profitable farms. There was also considerable difference in the crop yields. The most profitable farms grew 5.6 bushels more corn, 1.4 bushels more oats, and 1.4 bushels more wheat per acre than did the least profitable farms.

The investment per farm in livestock was $629 more on the most profitable farms than on the least profitable and the income was $1410 per farm higher while at the same time the decrease from the feed and grain account was less by $39. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $128 for the more profitable farms as compared with $98 for the less profitable farms. There were 6.7 pigs weaned per litter on the more profitable farms and 6.8 on the less profitable farms, although the returns per litter were $87 and $57 respectively. Dairy sales were $5 per cow higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $14.66 as compared with $8.88 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed but little difference. The average expense per acre for the most profitable farms was $14.45 as compared with $15.25 for the least profitable group. The cost of power and machinery was $.62 per crop acre lower for the more successful farms, and the man labor cost was $.73 an acre lower. The less profitable farms had a loss of $749 per farm in the feed and grain account, as compared with a loss of $788 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $.21 per acre for the more profitable farms as compared with a loss of $6.37 per acre for the less profitable group. For the first group this was a return of .11% on the capital invested in the business and for the second group a loss of 3.85%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery and labor accounts.

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In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

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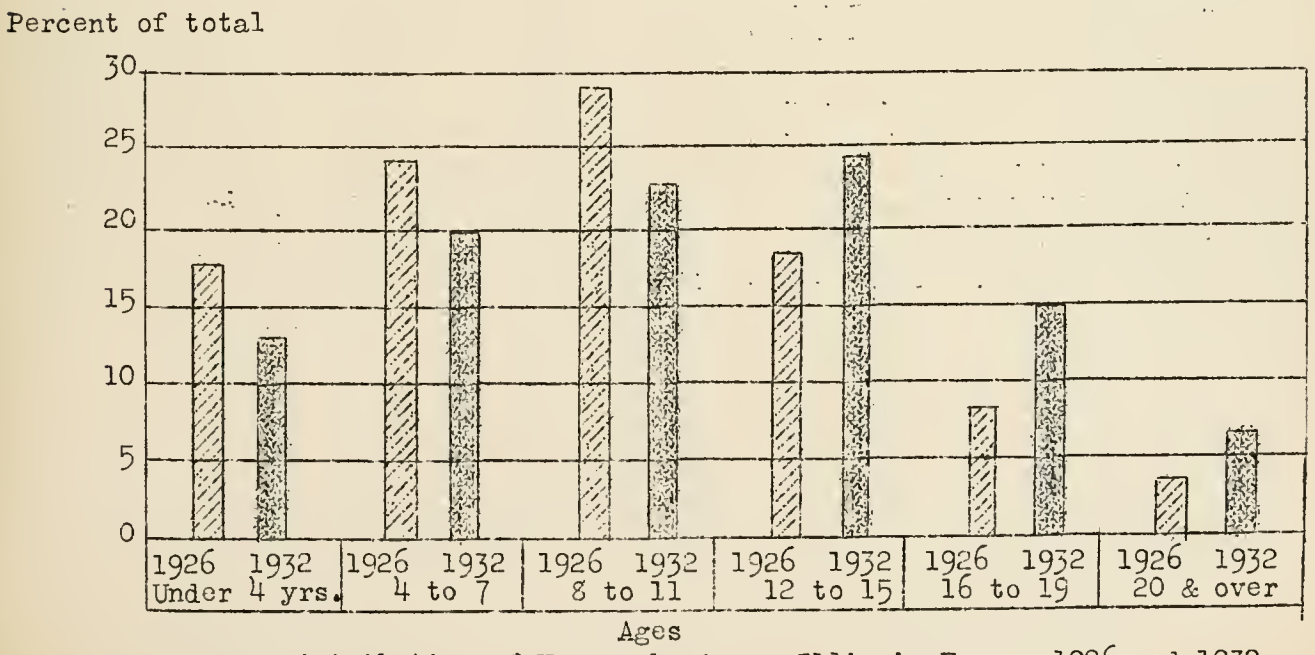


Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in McDonough County for 1927 to 1931 are shown in the following table. The rate earned dropped shraply in 1930 and again in 1931 although the average land value was $6 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The decrease in inventory was almost twice as high in 1931 as in the year previous.

Comparison of Earnings and Investments on Accounting Farms in McDonough County for 1927-1931

Items	1927	1928	1929	1930	1931
Number of farms	28	31	32	36	39
Average size of farms, acres	181	205	207	212	216
Average rate earned, to pay for management, risk and capital	1.6%	5.0%	6.5%	2.2%	-1.7%
Average labor and management wage	$-642	$739	$1369	$-431	$-1979
Gross income per acre	17.48	24.05	26.73	20.31	10.38
Operating cost per acre	13.91	13.48	13.24	16.10	13.44
Average value of land per acre	163	157	149	133	127
Total investment per acre	220	210	207	193	176
Investment per farm in:					
Total livestock	3247	2947	3417	3574	2842
Cattle	939	889	1236	1271	1125
Hogs	1535	1318	1501	1570	1086
Poultry	180	183	165	158	137
Gross income per farm	3170	4931	5534	5 303	2245
Income per farm from:					
Crops	148	808	385	--	--
Miscellaneous income	54	81	49	44	36
Total livestock	2968	4042	5100	4259	2209
Cattle	468	523	778	489	309
Dairy sales	325	353	373	308	279
Hogs	1795	2702	3478	3214	1394
Poultry	346	434	433	241	220
Average yield of corn in bu.	37	50	49	35	45
Average yield of oats in bu.	27	51	50	40	47

Investments, Receipts, Expenses, and Earnings on
39 McDonough County Farms, 1931

Items	Your farm	Average of 39 farms	13 most profitable farms	13 least profitable farms
CAPITAL INVESTMENTS				
Land		27 491	29 669	23 406
Farm improvements		4 184	4 788	4 134
Livestock total		2 842	3 258	2 629
Horses		428	442	432
Cattle		1 125	1 383	1 086
Hogs		1 086	1 272	833
Sheep		66	47	130
Poultry		137	114	148
Machinery and equipment		1 573	1 745	1 503
Feed, grain and supplies		1 978	2 127	1 704
Total capital investment	$	$38 068	$41 587	$33 376
RECEIPTS AND NET INCREASES				
Livestock total		2 209	3 147	1 737
Horses		--	--	--
Cattle		309	537	156
Hogs		1 394	2 085	989
Sheep		7	9	4
Poultry		115	77	134
Egg sales		105	87	126
Dairy sales		279	352	328
Feed, grain and supplies		--	--	--
Labor off farm		31	40	40
Miscellaneous receipts		5	2	12
Total receipts & net increases	$	$ 2 245	$ 3 189	$ 1 789
EXPENSES AND NET DECREASES				
Farm improvements		259	296	282
Horses		41	12	63
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		350	402	320
Feed, grain and supplies		634	749	788
Livestock expense		61	62	59
Crop expense		184	216	159
Hired labor		314	312	355
Taxes		327	375	295
Miscellaneous expenses		24	25	25
Total expenses & net decreases	$	$ 2 194	$ 2 449	$ 2 346
RECEIPTS LESS EXPENSES	$	$ 51	$ 740	$ -557
Total unpaid labor		713	695	728
Operator's labor		586	577	600
Family labor		127	118	128
Net income from investment and management		-662	45	-1 285
RATE EARNED ON INVESTMENT	%	-1.74%	.11%	-3.85%
Return to capital and operator's labor and management		-76	622	-685
5% of capital invested		1 903	2 079	1 669
LABOR AND MANAGEMENT WAGE	$	$-1 979	$-1 457	$-2 354

Chart for Studying the Efficiency of Various Parts of Your Business
McDonough County, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 39 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

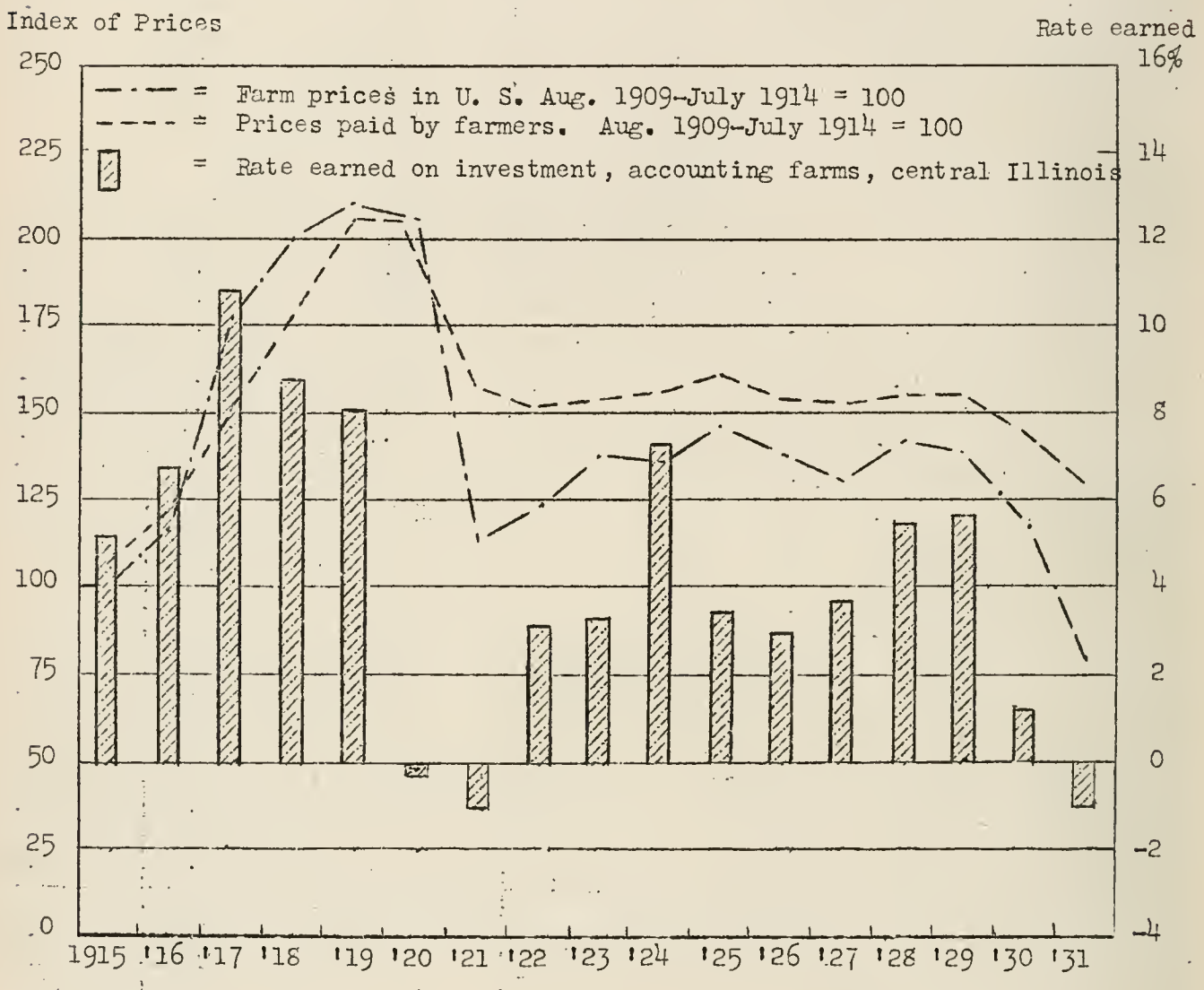
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.25	59	61	37	100	245	95	145	85	16	.15	24	60	17	5 000	360
4.25	57	59	35	95	235	90	140	80	15	.65	27	70	16	4 600	340
3.25	55	57	33	90	225	85	135	75	14	1.15	30	80	15	4 200	320
2.25	53	55	31	85	215	80	130	70	13	1.65	33	90	14	3 800	300
1.25	51	53	29	80	205	75	125	65	12	2.15	36	100	13	3 400	280
.25	49	51	27	75	195	70	120	60	11	2.65	39	110	12	3 000	260
- .75	47	49	25	70	185	65	115	55	10	3.15	42	120	11	2 600	240
-1.75	45	47	23	65	175	60	110	50	9	3.65	45	130	10	2 200	220
-2.75	43	45	21	60	165	55	105	45	8	4.15	48	140	9	1 800	200
-3.75	41	43	19	55	155	50	100	40	7	4.65	51	150	8	1 400	180
-4.75	39	41	17	50	145	45	95	35	6	5.15	54	160	7	1 000	160
-5.75	37	39	15	45	135	40	90	30	5	5.65	57	170	6	600	140
-6.75	35	37	13	40	125	35	85	25	4	6.15	60	180	5	200	120
-7.75	33	35	11	35	115	30	80	20	3	6.65	63	190	4	---	100
-8.75	31	33	9	30	105	25	75	15	2	7.15	66	200	3	---	80

Factors Helping to Analyze the Farm Business on
39 McDonough County Farms in 1931

Items	Your farm	Average of 39 farms	13 most profitable farms	13 least profitable farms
Size of farm--acres	_____	216.3	217.5	201.5
Percent of land area tillable		87.7	94.9	86.2
Gross receipts per acre	_____	10.38	14.66	8.88
Total expenses per acre		13.44	14.45	15.25
Net receipts per acre		-3.06	.21	-6.37
Value of land per acre		127	136	116
Total investment per acre		176	191	166
Acres in Corn	_____	82.2	89.2	66.8
Oats	_____	28.8	22.8	26.3
Wheat	_____	22.2	14.8	23.9
Soybeans	_____	8.4	20.4	1.9
Crop yields--Corn, bu. per acre	_____	44.8	45.9	40.3
Oats, bu. per acre	_____	46.7	47.1	45.7
Wheat, bu. per acre	_____	23.1	23.5	22.1
Value of feed fed to productive livestock	_____	2 017	2 456	1 778
Returns per $100 of feed fed to productive livestock	_____	110	128	98
Returns per $100 invested in:				
Cattle	_____	63	77	52
Poultry	_____	175	158	196
Pigs weaned per litter	_____	6.5	6.7	6.8
Income per litter farrowed	_____	61	87	57
Dairy sales per dairy cow	_____	49	60	55
Investment in productive livestock per acre	_____	9.20	10.99	9.05
Receipts from productive livestock per acre	_____	10.21	14.47	8.62
Power and machinery cost per crop acre	_____	3.64	3.56	4.18
Machinery cost per crop acre	_____	2.15	2.32	2.22
Value of feed fed to horses	_____	200	203	217
Man labor cost per $100 gross income	_____	44	30	58
Man labor cost per acre	_____	4.60	4.45	5.18
Expenses per $100 gross income	_____	129	99	172
Farm improvements cost per acre	_____	1.20	1.36	1.40
Farms with tractor	_____	72%	85%	69%
Excess of sales over cash expenses	_____	1 803	2 543	1 095
Decrease in inventory	_____	1 752	1 803	1 652

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN HANCOCK COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, R. G. Trummel and H. C. M. Case*

The average of farm earnings on account keeping farms in Hancock County, was lower in 1931 than in 1930. In 1930 the average net income was $883 per farm while in 1931 there was an average loss of $586 per farm. In 1930, however, $778 per farm was deducted for the labor of the operator and the family as compared with $693 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2510 in excess of cash expenses as compared with $1240 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*O. L. Welsh, farm adviser in Hancock County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Hancock County farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 281		$1 689
Feed, grain and supplies	1 618		1 246
Machinery	1 458		1 321
Improvements	3 866		3 834
Total inventory	9 223		8 090
Decrease in inventory		$1 133	
Total cash sales for 1931		$3 018	
Total cash purchases for 1931		1 778	
Excess of cash sales over cash purchases		1 240	
Decrease in inventory		1 133	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		107	

A decrease in the feed, grain and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Hancock County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 80 to 364 acres per farm. Four were smaller than 140 acres and only 2 were larger than 300 acres. The average size for all farms in the group was 195 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	220 - 259	4
100 - 139	3	260 - 299	3
140 - 179	11	300 - 339	1
180 - 219	6	340 - 379	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $70 to $109 on 9 farms; $110 to $149 on 11 farms, and $150 to $169 on 10 farms. The average value was $128 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $175 per acre.

As previously stated, the average for all farms indicated a loss of $586 per farm after deducting $693 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1731 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Six of the farms netted their operators incomes of more than $249, while the operators of 7 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	1	- 750 to -1 249	6
749 to 250	5	-1 250 to -1 749	6
249 to -249	4	-1 750 to -2 249	0
-250 to -749	7	-2 250 to -2 749	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 210 acres in size as compared with 192 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 13.4 bushels more corn, .8 bushels more oats, 5.4 bushels less soybeans, and 3.0 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $66 per farm less than the beginning inventory, while on the less profitable farms it was $723 less than the beginning inventory.

The investment per farm in livestock was $199 less on the most profitable farms than on the least profitable yet the income was $61 per farm higher while at the same time the increase from the feed and grain account was larger by $1347. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $132 for the more profitable farms as compared with $97 for the less profitable farms. There were 7.1 pigs weaned per litter on the more profitable farms but only 5.8 on the less profitable farms. Dairy sales were $11 per cow higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.83 as compared with $7.97 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.45 as compared with $15.43 for the least profitable group. The cost of power and machinery was $1.28 per crop acre lower for the more successful farms, and the man labor cost was 91 cents an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $899 per farm in the feed and grain account, as compared with a gain of $448 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.38 per acre for the more profitable farms as compared with a loss of $7.46 per acre for the less profitable group. For the first group this was a return of .82% on the capital invested in the business and for the second group a loss of 4.11%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed, labor and improvements accounts.

The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

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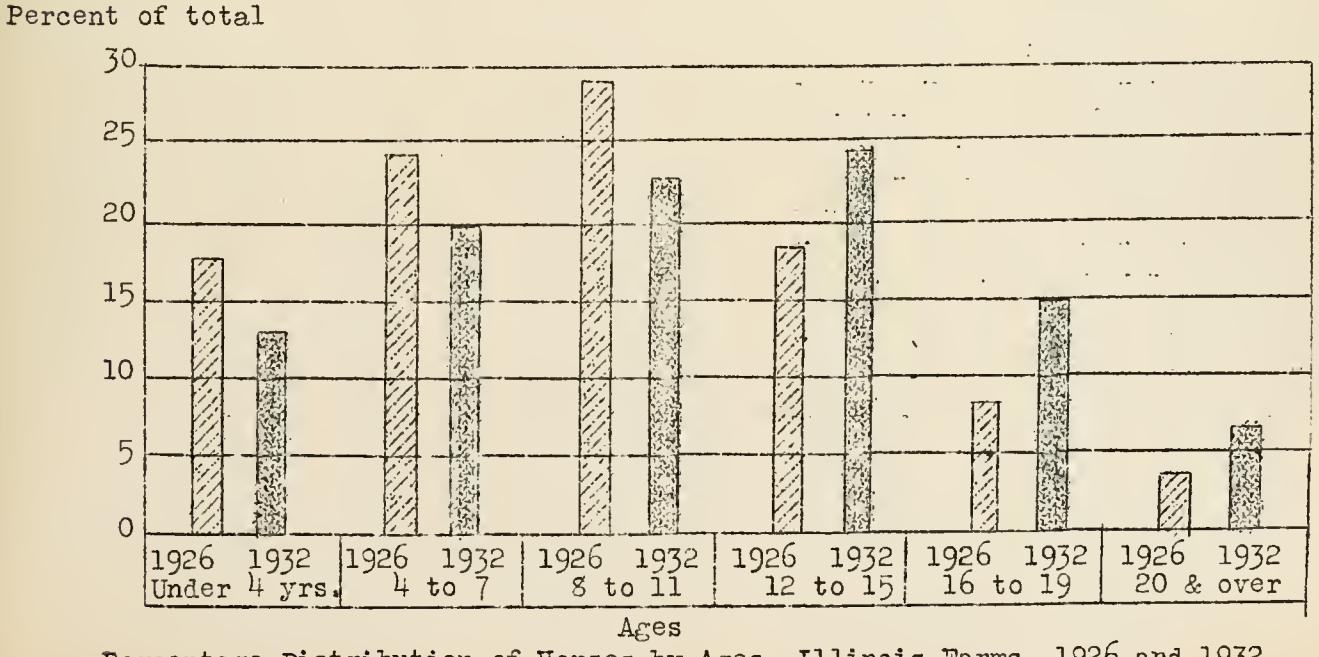


Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Hancock County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $19 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Hancock County for 1927-1931

Items	1927	1928	1929	1930	1931
Number of farms	31	33	32	30	30
Average size of farms, acres	218	223	229	208	195
Average rate earned, to pay for management, risk and capital	1.8%	5.6%	5.2%	2.1%	-1.7%
Average labor and management wage	$-652	$965	$805	$-526	$-1731
Gross income per acre	16.55	22.30	21.42	15.95	7.93
Operating cost per acre	12.97	11.46	11.43	11.69	10.93
Average value of land per acre	143	143	140	147	128
Total investment per acre	195	192	192	202	175
Investment per farm in:					
Total livestock	3579	3258	3037	3136	2281
Cattle	1147	1342	1436	1484	920
Hogs	1560	1080	805	1004	798
Poultry	157	144	130	151	100
Gross income per farm	3602	4974	4896	3310	1549
Income per farm from:					
Crops	----	1440	1079	419	----
Miscellaneous income	44	49	71	40	23
Total livestock	3558	3485	3746	2851	1526
Cattle	750	697	728	233	129
Dairy sales	269	486	547	466	209
Hogs	2176	2009	2128	1960	1042
Poultry	277	236	293	190	133
Average yield of corn in bu.	30	48	45	34	44
Average yield of oats in bu.	23	50	38	39	29

Investments, Receipts, Expenses, and Earnings on
30 Hancock County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		25 016	27 468	23 721
Farm improvements		3 866	2 560	5 359
Livestock total		2 281	2 306	2 505
Horses		437	448	502
Cattle		920	931	1 016
Hogs		798	827	856
Sheep		26	7	35
Poultry		100	93	96
Machinery and equipment		1 458	1 606	1 455
Feed, grain and supplies		1 618	1 491	1 858
Total capital investment	$	$34 239	$35 431	$34 898
RECEIPTS AND NET INCREASES				
Livestock total		1 526	1 577	1 516
Horses		---	---	---
Cattle		129	84	11
Hogs		1 042	1 015	1 237
Sheep		13	1	23
Poultry		48	53	42
Egg sales		85	61	86
Dairy sales		209	363	117
Feed, grain and supplies		---	448	---
Labor off farm		21	35	16
Miscellaneous receipts		2	3	2
Total receipts & net increases	$	$ 1 549	$ 2 063	$ 1 534
EXPENSES AND NET DECREASES				
Farm improvements		186	129	266
Horses		45	33	52
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		268	268	291
Feed, grain and supplies		228	---	899
Livestock expense		32	25	42
Crop expense		144	136	144
Hired labor		237	238	323
Taxes		276	268	279
Miscellaneous expenses		26	28	25
Total expenses & net decreases	$	$ 1 442	$ 1 125	$ 2 321
RECEIPTS LESS EXPENSES	$	$ 107	$ 938	$ -787
Total unpaid labor		693	648	649
Operator's labor		567	560	570
Family labor		126	88	79
Net income from investment and management		-586	290	-1 436
RATE EARNED ON INVESTMENT	%	-1.71%	.82%	-4.11%
Return to capital and operator's labor and management		-19	850	-866
5% of capital invested		1 712	1 772	1 745
LABOR AND MANAGEMENT WAGE	$	$-1 731	$ -922	$-2 611

Chart for Studying the Efficiency of Various Parts of Your Business
Hancock County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

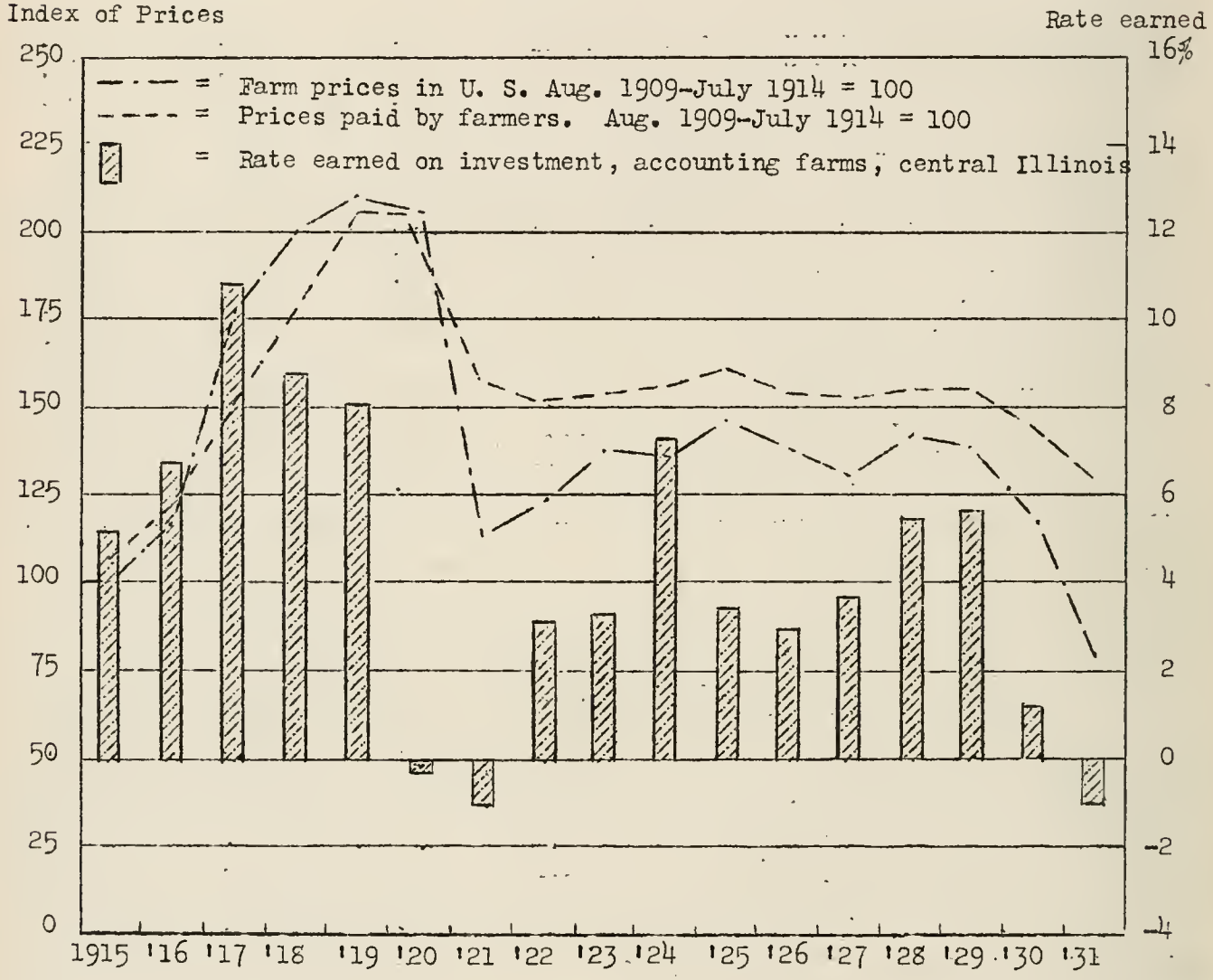
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.3	58	43	36	75	210	100	150	75	15	----	39	70	15	3 600	335
4.3	56	41	34	70	200	95	145	70	14	.20	42	80	14	3 300	315
3.3	54	39	32	65	190	90	140	65	13	.70	45	90	13	3 000	295
2.3	52	37	30	60	180	85	135	60	12	1.20	48	100	12	2 700	275
1.3	50	35	28	55	170	80	130	55	11	1.70	51	110	11	2 400	255
.3	48	33	26	50	160	75	125	50	10	2.20	54	120	10	2 100	235
-.7	46	31	24	45	150	70	120	45	9	2.70	57	130	9	1 800	215
-1.7	44	29	22	40	140	65	115	40	8	3.20	60	140	8	1 500	195
-2.7	42	27	20	35	130	60	110	35	7	3.70	63	150	7	1 200	175
-3.7	40	25	18	30	120	55	105	30	6	4.20	69	160	6	900	155
-4.7	38	23	16	25	110	50	100	25	5	4.70	72	170	5	600	135
-5.7	36	21	14	20	100	45	95	20	4	5.20	75	180	4	300	115
-6.7	34	19	12	15	90	40	90	15	3	5.70	78	190	3	0	95
-7.7	32	17	10	10	80	35	85	10	2	6.20	81	200	2	---	75
-8.7	30	15	8	5	70	30	80	5	1	6.70	84	210	1	---	55

Factors Helping to Analyze the Farm Business on
30 Hancock County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	195.3	209.8	192.5
Percent of land area tillable		91.6	95.5	87.6
Gross receipts per acre	_____	7.93	9.83	7.97
Total expenses per acre		10.93	8.45	15.43
Net receipts per acre		-3.00	1.38	-7.46
Value of land per acre		128	131	123
Total investment per acre		175	169	181
Acres in Corn	_____	73.6	86.4	66.0
Oats	_____	28.2	35.4	19.4
Wheat	_____	11.9	8.0	10.9
Soybeans	_____	16.4	18.2	19.8
Crop yields--Corn, bu. per acre	_____	43.6	50.6	37.2
Oats, bu. per acre	_____	29.0	47.2	46.4
Wheat, bu. per acre	_____	22.0	22.4	19.4
Soybeans, bu. per acre	_____	19.9	18.0	23.4
Value of feed fed to productive livestock	_____	1 354	1 192	1 564
Returns per $100 of feed fed to productive livestock	_____	113	132	97
Returns per $100 invested in:				
Cattle	_____	42	51	16
Poultry	_____	142	128	150
Pigs weaned per litter	_____	6.5	7.1	5.8
Income per litter farrowed	_____	64	79	62
Dairy sales per dairy cow	_____	39	43	32
Investment in productive livestock per acre	_____	8.09	7.68	8.38
Receipts from productive livestock per acre	_____	7.81	7.52	7.88
Power and machinery cost per crop acre	_____	3.20	2.67	3.95
Machinery cost per crop acre	_____	1.76	1.55	2.10
Value of feed fed to horses	_____	174	162	203
Man labor cost per $100 gross income	_____	59	41	62
Man labor cost per acre	_____	4.65	4.06	4.97
Expenses per $100 gross income	_____	138	86	194
Farm improvements cost per acre	_____	.95	.62	1.38
Farms with tractor	_____	63%	80%	50%
Excess of sales over cash expenses	_____	1 240	1 874	1 015
Decrease in inventory	_____	1 133	936	1 802

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-ONE FARMS IN ADAMS COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright and H. C. M. Case*

The average of farm earnings, on account keeping farms in Adams County, was lower in 1931 than in 1930. In 1930 the average net income was $366 per farm while in 1931 there was an average loss of $733 per farm. In 1930, however, $857 per farm was deducted for the labor of the operator and the family as compared with $764 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $1,599 in excess of cash expenses as compared with $906 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*S. F. Russell, farm adviser in Adams County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Adams County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$1 915	$1 484	
Feed, grain and supplies	1 311	980	
Machinery	1 264	1 192	
Improvements	3 265	3 224	
Total inventory	7 755	6 880	
Decrease in inventory			$ 875
Total cash sales for 1931			$2 586
Total cash purchases for 1931			1 680
Excess of cash sales over cash purchases			906
Decrease in inventory			875
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			31

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Adams County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 31 farms included in this study ranged in size from 77 to 340 acres per farm. Only 5 were smaller than 100 acres and only 2 were larger than 300 acres. The average size for all farms in the group was 178 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	5	220 - 259	6
100 - 139	6	260 - 299	1
140 - 179	4	300 - 339	1
180 - 219	7	340 - 379	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 31 farms included in the present study, the value of bare land per acre was $50 to $89 per acre on 13 farms; $90 to $129 on 13 farms, and $130 to $169 on 4 farms. The average value was $87 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $131 per acre.

As previously stated, the average for all farms indicated a loss of $733 per farm after deducting $764 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1,323 of having enough income to pay 5% on the investment and receive nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Two of the farms netted their operators incomes of more than $249 while the operators of five farms sustained losses of more than $1,249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	1	$ -250 to -749	5
1 249 to 750	0	-750 to -1 249	14
749 to 250	1	-1 250 to -1 749	4
249 to -249	5	-1 750 to -2 249	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 169 acres in size as compared with 157 for the less profitable group. The larger farms had a slightly higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 6.7 bushels more corn, 2.9 bushels more oats, but 5.9 bushels less wheat per acre than did the least profitable farms.

The investment per farm in livestock was the same on the most profitable farms as on the least profitable but the income was $341 per farm higher while at the same time the increase from the feed and grain account was larger by $875. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $144 for the more profitable farms as compared with $82 for the less profitable farms. The cattle were more efficient on the more profitable farms while the hogs were less efficient. Dairy sales were $20 per cow higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.25 as compared with $6.50 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $10.42 as compared with $14.26 for the least profitable group. The cost of power and machinery was 28 cents per crop acre lower for the more successful farms, and the improvements cost was 27 cents an acre lower. The less profitable farms had a loss of $536 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net loss of 17 cents per acre for the more profitable farms as compared with $7.76 per acre for the less profitable group. For the first group this was a loss of .12% on the capital invested in the business and for the second group a loss of 6.38%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed and improvements accounts.

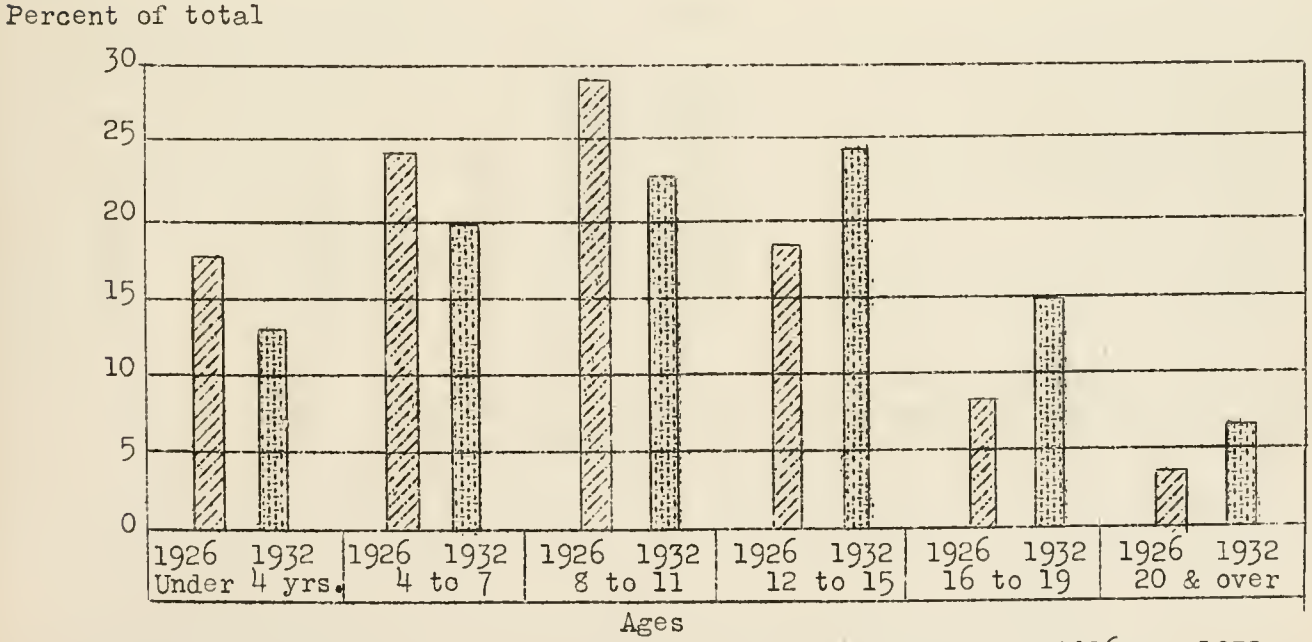
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Adams County for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $11 per acre higher in 1930 than in 1931. The income from livestock was much lower in 1931 than in 1930 while decrease from the feed and grain account was larger. The latter item was sufficient to cause the total expense per acre to be larger in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Adams County for 1928-1931

Items	1928	1929	1930	1931
Number of farms	28	30	30	31
Average size of farms, acres	184	192	198	178
Average rate earned, to pay for management, risk and capital	5.9%	3.0%	1.3%	-3.14
Average labor and management wage	$970	$83	$-386	$-1323
Gross income per acre	22.53	18.33	14.26	8.69
Operating cost per acre	12.94	13.68	12.41	12.82
Average value of land per acre	115	107	98	87
Total investment per acre	163	156	145	131
Investment per farm in:				
Total livestock	2658	2574	2517	1915
Cattle	1206	1062	1094	802
Hogs	767	837	785	592
Poultry	148	140	144	115
Gross income per farm	4153	3519	2820	1543
Income per farm from:				
Crops	277	---	---	---
Miscellaneous income	104	91	92	63
Total livestock	3772	3428	2728	1480
Cattle	790	437	220	38
Dairy sales	653	542	419	390
Hogs	1869	2052	1861	861
Poultry	323	305	203	166
Average yield of corn in bu.	42	36	29	39
Average yield of oats in bu.	40	34	30	41

Investments, Receipts, Expenses, and Earnings on
31 Adams County Farms, 1931

Items	Your farm	Average of 31 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		15 519	16 754	12 410
Farm improvements		3 265	3 375	2 498
Livestock total	_____	1 915	1 909	1 925
Horses		338	336	344
Cattle		802	920	848
Hogs		592	459	578
Sheep		68	72	39
Poultry		115	122	116
Machinery and equipment		1 264	1 126	1 014
Feed, grain and supplies		1 311	1 551	1 217
Total capital investment	$_____	$23 274	$24 715	$19 064
RECEIPTS AND NET INCREASES				
Livestock total	_____	1 480	1 311	970
Horses		---	---	---
Cattle		38	77	---
Hogs		861	705	678
Sheep		25	45	13
Poultry		71	81	69
Egg sales		95	105	112
Dairy sales		390	298	98
Feed, grain and supplies		---	339	---
Labor off farm		56	70	45
Miscellaneous receipts		7	13	3
Total receipts & net increases	$_____	$ 1 543	$ 1 733	$ 1 018
EXPENSES AND NET DECREASES				
Farm improvements		145	101	136
Horses		21	15	15
Miscellaneous livestock decreases Cattle		---	---	5
Machinery and equipment		342	268	278
Feed, grain and supplies		388	---	536
Livestock expense		41	34	42
Crop expense		158	178	152
Hired labor		165	189	134
Taxes		225	212	213
Miscellaneous expenses		27	25	22
Total expenses & net decreases	$_____	$ 1 512	$ 1 022	$ 1 533
RECEIPTS LESS EXPENSES	$_____	$ 31	$ 711	$ -515
Total unpaid labor		764	740	701
Operator's labor		574	540	590
Family labor		190	200	111
Net income from investment and management		-733	-29	-1 216
RATE EARNED ON INVESTMENT	_____%	-3.14%	-.12%	-6.38%
Return to capital and operator's labor and management		-159	511	-626
5% of capital invested		1 164	1 236	953
LABOR AND MANAGEMENT WAGE	$_____	$-1 323	$ -725	$-1 579

Chart for Studying the Efficiency of Various Parts of Your Business
Adams County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 31 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

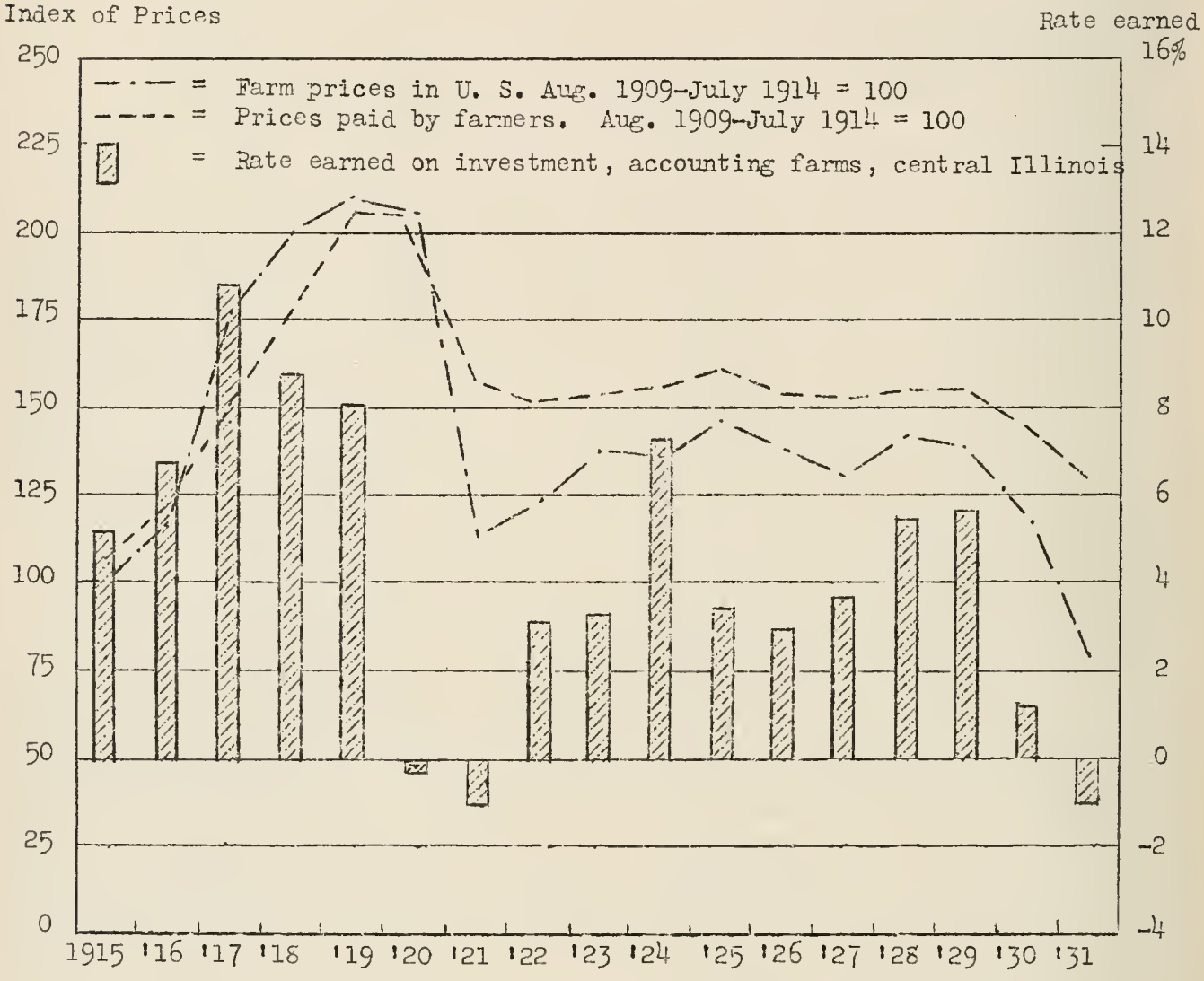
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
4.0	53	55	37	130	290	85	180	130	15	1.00	25	80	16	5 000	320
3.0	51	53	35	120	270	80	170	120	14	1.50	30	90	15	4 500	300
2.0	49	51	33	110	250	75	160	110	13	2.00	35	100	14	4 000	280
1.0	47	49	31	100	230	70	150	100	12	2.50	40	110	13	3 500	260
0.0	45	47	29	90	210	65	140	90	11	3.00	45	120	12	3 000	240
-1.0	43	45	27	80	190	60	130	80	10	3.50	50	130	11	2 500	220
-2.0	41	43	25	70	170	55	120	70	9	4.00	55	140	10	2 000	200
-3.0	39	41	23	60	150	50	110	60	8	4.50	60	150	9	1 500	180
-4.0	37	39	21	50	130	45	100	50	7	5.00	65	160	8	1 000	160
-5.0	35	37	19	40	110	40	90	40	6	5.50	70	170	7	500	140
-6.0	33	35	17	30	90	35	80	30	5	6.00	75	180	6	0	120
-7.0	31	33	15	20	70	30	70	20	4	6.50	80	190	5	---	100
-8.0	29	31	13	10	50	25	60	10	3	7.00	85	200	4	---	80
-9.0	27	29	11	0	30	20	50	0	2	7.50	90	210	3	---	60
-10.0	25	27	9	--	10	15	40	--	1	8.00	95	220	2	---	40

Factors Helping to Analyze the Farm Business on
31 Adams County Farms in 1931

Items	Your farm	Average of 31 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	____	177.6	169.1	156.7
Percent of land area tillable		81.9	82.2	81.5
Gross receipts per acre	____	8.69	10.25	6.50
Total expenses per acre		12.82	10.42	14.26
Net receipts per acre		-4.13	-.17	-7.76
Value of land per acre		87	99	79
Total investment per acre		131	146	122
Acres in Corn	____	50.5	43.8	44.4
Oats	____	26.8	24.3	23.5
Wheat	____	14.6	19.5	11.9
Soybeans	____	3.0	4.4	4.4
Crop yields--Corn, bu. per acre	____	38.6	42.1	35.4
Oats, bu. per acre	____	40.7	39.4	36.5
Wheat, bu. per acre	____	22.6	18.4	24.3
Value of feed fed to productive livestock	____	1 333	1 188	1 183
Returns per $100 of feed fed to productive livestock	____	111	144	82
Returns per $100 invested in:				
Cattle	____	58	87	13
Poultry	____	152	157	159
Pigs weaned per litter	____	6.2	6.5	6.6
Income per litter farrowed	____	48	44	53
Dairy sales per dairy cow	____	61	41	21
Investment in productive livestock per acre	____	7.72	8.63	8.18
Receipts from productive livestock per acre	____	8.33	10.12	6.16
Power and machinery cost per crop acre	____	4.52	3.92	4.20
Machinery cost per crop acre	____	2.94	2.34	2.66
Value of feed fed to horses	____	163	165	146
Man labor cost per $100 gross income	____	57	52	78
Man labor cost per acre	____	4.92	5.29	5.04
Expenses per $100 gross income	____	148	102	219
Farm improvements cost per acre	____	.82	.60	.87
Farms with tractor	____	68%	70%	60%
Excess of sales over cash expenses	____	906	1 515	662
Decrease in inventory	____	876	804	1 177

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

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ANNUAL FARM BUSINESS REPORT ON FORTY-SIX FARMS IN FULTON, PEORIA, AND SCHUYLER COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright, and H. C. M. Case*

The average of farm earnings on account keeping farms in Fulton, Peoria, and Schuyler counties was lower in 1931 than in 1930. In 1930 the average net income was $387 per farm while in 1931 there was an average loss of $647 per farm. In 1930, however, $877 per farm was deducted for the labor of the operator and the family as compared with $759 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2670 in excess of cash expenses as compared with $1368 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*J. E. Watt, J. W. Whisenand, and L. E. McKinzie, farm advisers in Fulton, Peoria, and Schuyler counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 46 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$2 622	$1 883
Feed, grain and supplies	1 493	1 222
Machinery	1 504	1 387
Improvements	3 947	3 818
Total inventory	9 566	8 310
Decrease in inventory	$1 256	

Total cash sales for 1931	$2 948
Total cash purchases for 1931	1 580
Excess of cash sales over cash purchases	1 368
Decrease in inventory	1 256
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	112

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Fulton, Peoria, and Schuyler counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 46 farms included in this study ranged in size from 76 to 547 acres per farm. Two were smaller than 100 acres and 7 were larger than 300 acres. The average size for all farms in the group was 220 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms 1/	Acres per farm	Number of farms
60 - 99	2	260 - 299	7
100 - 139	4	300 - 339	4
140 - 179	11	340 - 379	1
180 - 219	6	380 - 419	1
220 - 259	9		

1/ One farm contained 547 acres.

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 46 farms included in the present study, the value of bare land per acre was $30 to $89 on 23 farms; $90 to $149 on 18 farms, and $150 to $209 on 5 farms. The average value was $93 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $136 per acre.

As previously stated, the average for all farms indicated a loss of $647 per farm after deducting $759 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1557 of having enough income to pay 5% on the investment and received nothing for his labor and management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Six of the farms netted their operators incomes of more than $249, while the operators of 8 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	1	- 750 to -1 249	10
749 to 250	5	-1 250 to -1 749	4
249 to -249	7	-1 750 to -2 249	1
-250 to -749	15	-2 250 to -2 749	3

A comparison of the 15 farms having the highest rate earned on investment with the 15 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 185 acres in size as compared with 224 for the less profitable group. The smaller farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, and there was but little difference in the crop yields. The most profitable farms grew .8 bushels less corn, 3.5 bushels more oats, and .2 bushels less wheat per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $51 per farm less than the beginning inventory, while on the less profitable farms it was $653 less than the beginning inventory.

The investment per farm in livestock was $258 less on the most profitable farms than on the least profitable, yet the income was $425 per farm higher, while at the same time the decrease from the feed and grain account was smaller by $530. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $144 for the more profitable farms as compared with $78 for the less profitable farms. There were 6.3 pigs weaned per litter on the more profitable farms but only 5.9 on the less profitable farms. Dairy sales were $18 per cow higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.78 as compared with $6.35 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $9.09 as compared with $12.68 for the least profitable group. The cost of power and machinery was $1.46 per crop acre lower for the more successful farms, and the man labor cost was $.23 an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $586 per farm in the feed and grain account, as compared with a loss of $56 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $.69 per acre for the more profitable farms as compared with a loss of $6.33 per acre for the less profitable group. For the first group this was a return of .47% on the capital invested in the business and for the second group a loss of 4.82%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor, feed and improvements accounts.

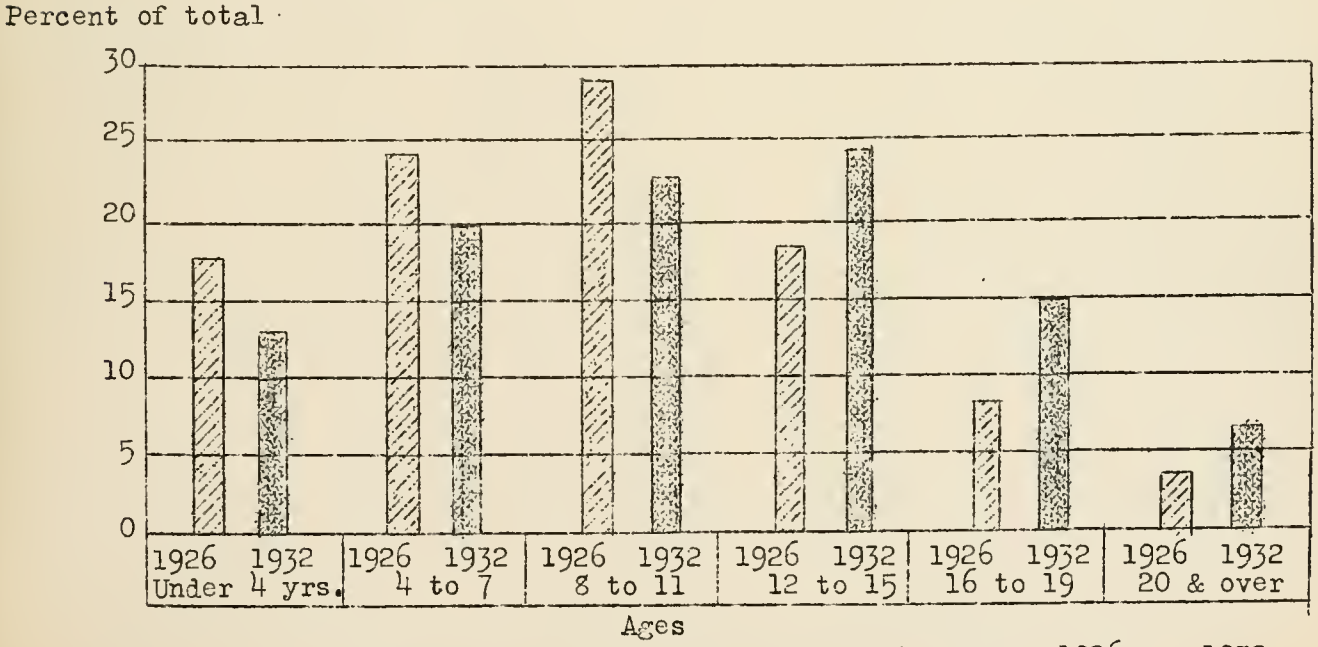
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Fulton, Peoria, and Schuyler counties for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931, although the average land value was $20 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Fulton, Peoria, and Schuyler Counties for 1928-1931

Items	1928[1]	1929[1]	1930	1931
Number of farms	41	33	52	46
Average size of farms, acres	238	235	218	220
Average rate earned, to pay for management, risk and capital	6.2%	4.5%	1.1%	-2.2%
Average labor and management wage	$1172	$532	$-739	$-1557
Gross income per acre	21.09	19.19	15.61	7.58
Operating cost per acre	10.75	11.97	13.83	10.52
Average value of land per acre	125	114	113	93
Total investment per acre	167	160	166	136
Investment per farm in:				
Total livestock	3018	3538	3455	2622
Cattle	1098	1534	1618	1021
Hogs	1121	1122	1090	932
Poultry	124	118	123	118
Gross income per farm	5024	4509	3399	1668
Income per farm from:				
Crops	1094	--	--	--
Miscellaneous income	50	61	82	103
Total livestock	3880	4448	3317	1565
Cattle	934	847	525	34
Dairy sales	359	330	432	269
Hogs	2251	2931	2160	1092
Poultry	236	218	190	145
Average yield of corn in bu.	48	43	29	44
Average yield of oats in bu.	44	40	31	40

1/ Records from Fulton and Schuyler counties only for 1928 and 1929.

Investments, Receipts, Expenses, and Earnings on
46 Fulton, Peoria, and Schuyler County Farms, 1931

Items	Your farm	Average of 46 farms	15 most profitable farms	15 least profitable farms
CAPITAL INVESTMENTS				
Land		20 419	19 094	19 018
Farm improvements		3 947	3 383	3 852
Livestock total		2 622	2 563	2 821
Horses		454	419	519
Cattle		1 021	878	1 231
Hogs		932	1 095	887
Sheep		97	52	73
Poultry		118	119	111
Machinery and equipment		1 504	1 014	1 867
Feed, grain and supplies		1 493	1 091	1 949
Total capital investment	$	$29 985	$27 145	$29 507
RECEIPTS AND NET INCREASES				
Livestock total		1 565	1 728	1 303
Horses		--	--	--
Cattle		34	79	10
Hogs		1 092	1 053	1 010
Sheep		25	15	7
Poultry		42	56	35
Egg sales		103	106	113
Dairy sales		269	419	128
Feed, grain and supplies		--	--	--
Labor off farm		71	76	64
Miscellaneous receipts		32	3	59
Total receipts & net increases	$	$1 668	$1 807	$1 426
EXPENSES AND NET DECREASES				
Farm improvements		214	170	269
Horses		51	30	70
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		260	150	326
Feed, grain and supplies		312	56	586
Livestock expense		39	40	39
Crop expense		118	109	146
Hired labor		231	107	287
Taxes		307	256	296
Miscellaneous expenses		24	21	24
Total expenses and net decreases	$	$1 556	$ 939	$2 043
RECEIPTS LESS EXPENSES	$	$ 112	$ 868	$ -617
Total unpaid labor		759	741	804
Operator's labor		589	593	600
Family labor		170	148	204
Net income from investment and management		-647	127	-1 421
RATE EARNED ON INVESTMENT	%	-2.16%	.47%	-4.82%
Return to capital and operator's labor and management		-58	720	-821
5% of capital invested		1 499	1 357	1 475
LABOR AND MANAGEMENT WAGE	$	$-1 557	$ -637	$-2 296

Chart for Studying the Efficiency of Various Parts of Your Business
Fulton, Peoria, and Schuyler Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 46 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

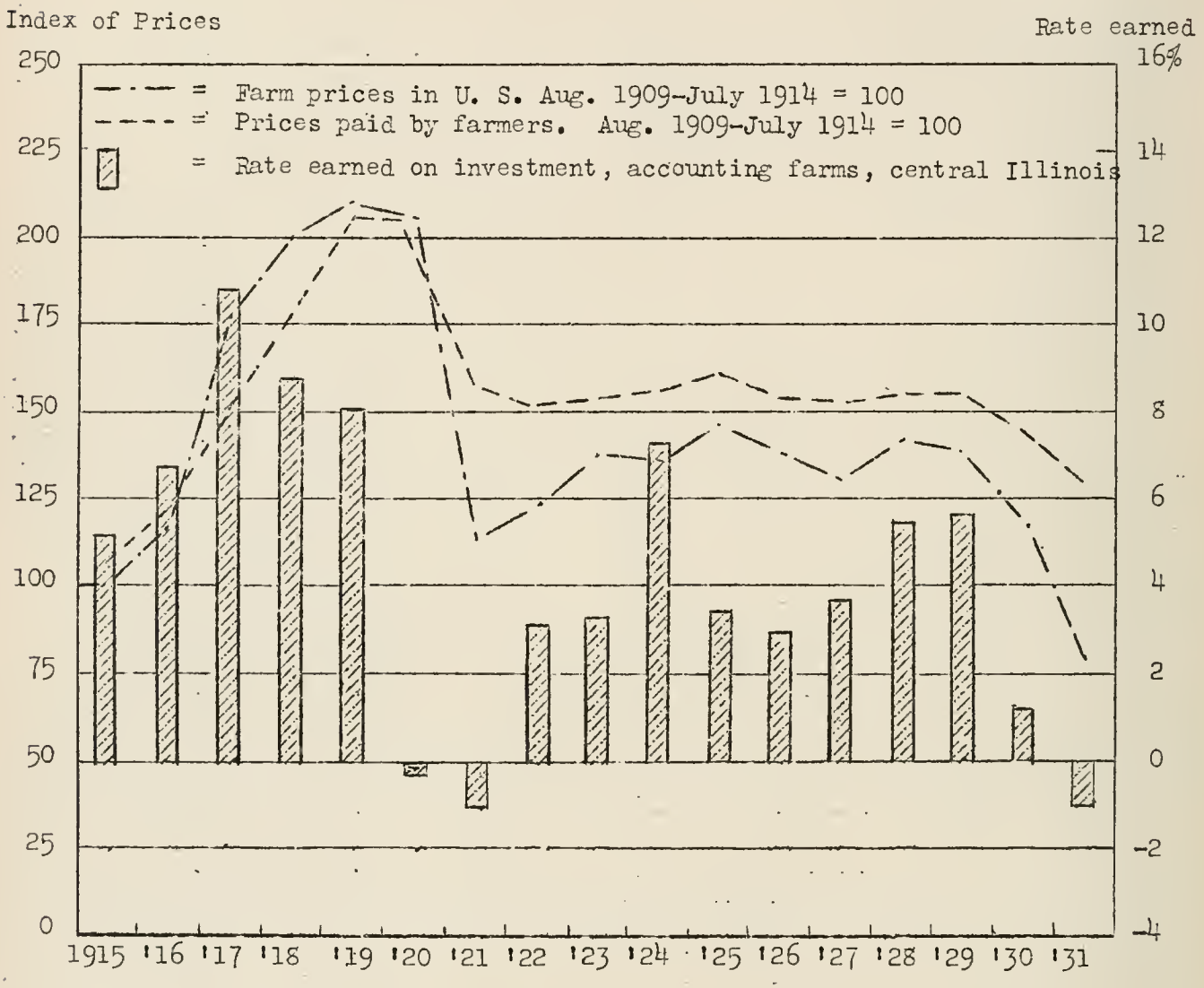
Rate earned	Bushels per acre of			Returns per $100 invested in		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.0	58	54	38	70	205	85	140	80	15	.15	39	70	15	3 800	360
4.0	56	52	36	65	195	80	135	75	14	.65	42	80	14	3 500	340
3.0	54	50	34	60	185	75	130	70	13	1.15	45	90	13	3 200	320
2.0	52	48	32	55	175	70	125	65	12	1.65	48	100	12	2 900	300
1.0	50	46	30	50	165	65	120	60	11	2.15	51	110	11	2 600	280
.0	48	44	28	45	155	60	115	55	10	2.65	54	120	10	2 300	260
-1.0	46	42	26	40	145	55	110	50	9	3.15	57	130	9	2 000	240
-2.0	44	40	24	35	135	50	105	45	8	3.65	60	140	8	1 700	220
-3.0	42	38	22	30	125	45	100	40	7	4.15	63	150	7	1 400	200
-4.0	40	36	20	25	115	40	95	35	6	4.65	66	160	6	1 100	180
-5.0	38	34	18	20	105	35	90	30	5	5.15	69	170	5	800	160
-6.0	36	32	16	15	95	30	85	25	4	5.65	72	180	4	500	140
-7.0	34	30	14	10	85	25	80	20	3	6.15	75	190	3	200	120
-8.0	32	28	12	5	75	20	75	15	2	6.65	78	200	2	--	100
-9.0	30	26	10	0	65	15	70	10	1	7.15	81	210	1	--	80

Factors Helping to Analyze the Farm Business on
Fulton, Peoria, and Schuyler County Farms in 1931

Items	Your farm	Average of 46 farms	15 most profitable farms	15 least profitable farms
Size of farm--acres	_____	220.0	184.8	224.4
Percent of land area tillable		74.4	74.7	70.8
Gross receipts per acre	_____	7.58	9.78	6.35
Total expenses per acre		10.52	9.09	12.68
Net receipts per acre		-2.94	.69	-6.33
Value of land per acre		93	103	85
Total investment per acre		136	147	131
Acres in Corn	_____	66.2	60.3	60.4
Oats	_____	23.7	21.9	22.1
Wheat	_____	18.5	13.5	27.3
Soybeans	_____	6.0	3.3	7.8
Crop yields--Corn, bu. per acre	_____	44.0	44.8	45.6
Oats, bu. per acre	_____	39.6	41.7	38.2
Wheat, bu. per acre	_____	23.8	24.6	24.8
Value of feed fed to productive livestock	_____	1 517	1 200	1 674
Returns per $100 of feed fed to productive livestock	_____	103	144	78
Returns per $100 invested in:				
Cattle	_____	34	60	14
Poultry	_____	135	149	151
Pigs weaned per litter	_____	5.9	6.3	5.9
Income per litter farrowed	_____	50	56	53
Dairy sales per dairy cow	_____	46	54	36
Investment in productive livestock per acre	_____	8.32	9.82	8.34
Receipts from productive livestock per acre	_____	7.11	9.35	5.81
Power and machinery cost per crop acre	_____	3.65	2.92	4.38
Machinery cost per crop acre	_____	1.87	1.24	2.31
Value of feed fed to horses	_____	197	173	223
Man labor cost per $100 gross income	_____	58	46	74
Man labor cost per acre	_____	4.36	4.48	4.71
Expenses per $100 gross income	_____	138	93	200
Farm improvements cost per acre	_____	.97	.92	1.20
Farms with tractor	_____	54%	60%	53%
Excess of sales over cash expenses	_____	1 368	1 768	1 255
Decrease in inventory	_____	1 256	900	1 872

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON FORTY-EIGHT FARMS IN DEWITT, LOGAN, AND PIATT COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright and H. C. M. Case*

The average of farm earnings, on account keeping farms in this area, was lower in 1931 than in 1930. In 1930 the average net income was $830 per farm while in 1931 there was an average loss of $748 per farm. In 1930, however, $883 per farm was deducted for the labor of the operator and the family as compared with $765 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2,935 in excess of cash expenses as compared with $1,466 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*H. N. Myers, J. H. Checkley, and S. S. Davis, farm advisers in DeWitt, Logan, and Piatt Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 48 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$2 177	$1 839
Feed, grain and supplies	2 685	1 820
Machinery	1 773	1 643
Improvements	4 819	4 703
Total inventory	11 454	10 005
Decrease in inventory		-$1 449

Total cash sales for 1931	-$3 613
Total cash purchases for 1931	- 2 147
Excess of cash sales over cash purchases	- 1 466
Decrease in inventory	- 1 449
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	17

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in this area. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 48 farms included in this study ranged in size from 87 to 620 acres per farm. Five were smaller than 140 acres and 4 were larger than 420 acres. The average size for all farms in the group was 270 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	300 - 339	5
100 - 139	4	340 - 379	2
140 - 179	8	380 - 419	6
180 - 219	4	420 - 459	2
220 - 259	7	460 - 599	1
260 - 299	7	600 - 639	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 48 farms included in the present study, the value of bare land per acre was $58 to $109 per acre on 6 farms; $110 to $149 on 16 farms, and $150 to $209 on 26 farms. The average value was $149 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $191 per acre.

As previously stated, the average for all farms indicated a loss of $748 per farm after deducting $765 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2,739 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the 48 farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Five of the farms netted their operators incomes of more than $249; while the operators of 8 farms sustained losses of more than $1,749. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farm
$1 249 to 750	2	$-750 to -1 249	7
749 to 250	3	-1 250 to -1 749	5
249 to -249	7	-1 750 to -2 249	7
-250 to -749	16	-2 250 to -2 749	1

A comparison of the 16 farms having the highest rate earned on investment with the 16 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 263 acres in size as compared with 255 for the less profitable group. The larger farms had a smaller percentage of the land area tillable but a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 2.6 bushels more corn 3.0 bushels more oats, 4.7 bushels more soybeans, but 3.5 bushels less wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $373 per farm less than the beginning inventory, while on the less profitable farms it was $1,229 less than the beginning.

The investment per farm in livestock was $548 less on the most profitable farms than on the least profitable yet the income was $145 per farm higher while at the same time the increase from the feed and grain account was larger by $1,148. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $139 for the more profitable farms as compared with $86 for the less profitable farms. The efficiency of hogs and poultry was about the same for both groups but the dairy sales per dairy cow average $78 on the more profitable farms and only $55 on the less profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.58 as compared with $4.74 per acre for the least profitable farms.

The average operating expenses for the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $9.23 as compared with $10.67 for the least profitable group. The cost of power and machinery was $1.01 per crop acre lower for the more successful farms, and the man labor cost was 80 cents an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of 35 cents per acre for the more profitable farms as compared with a loss of $5.93 per acre for the less profitable group. For the first group this was a return of .18% on the capital invested in the business and for the second group a loss of 3.16%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, and labor accounts. The decrease in inventory was $932 per farm on the more profitable farms and $1,929 per farm for the lower earnings group.

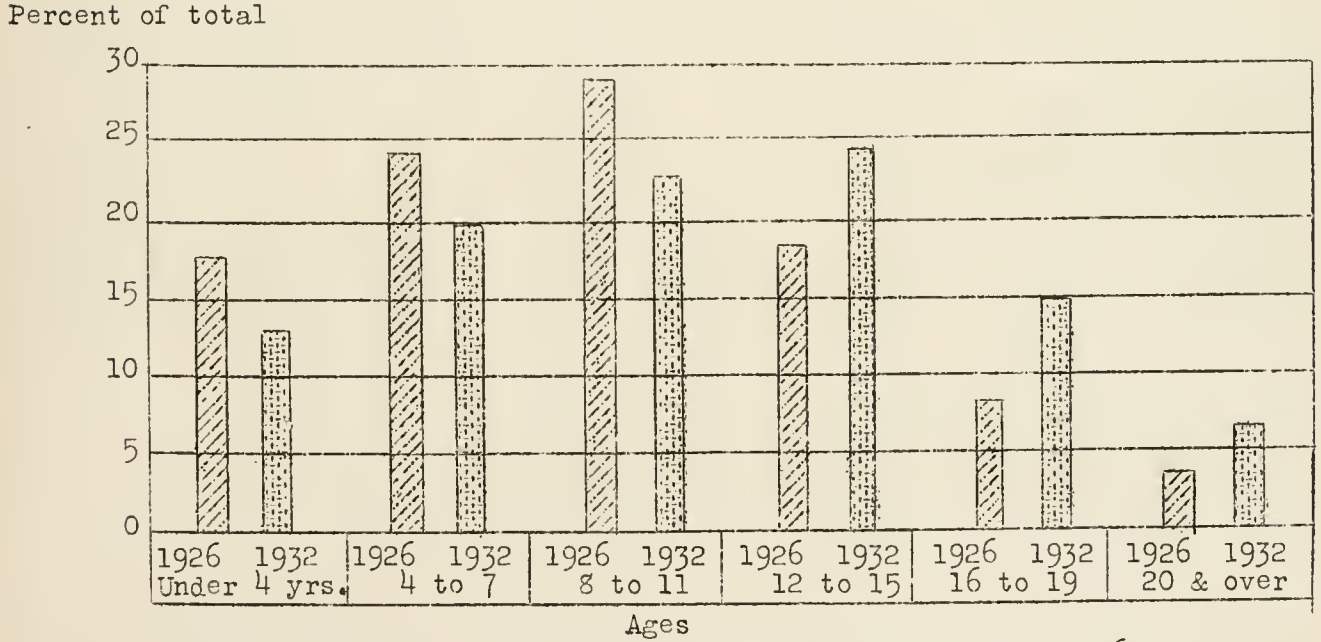
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in DeWitt, Logan, and Piatt Counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $24 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The increase from both crops and livestock was lower in 1931 than in 1930. The income from crops was much lower in spite of the better crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in DeWitt, Logan, and Piatt Counties for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930[1]	1931
Number of farms	31	53	40	56	48
Average size of farms, acres	259	244	223	248	270
Average rate earned, to pay for management, risk and capital	2.8%	5.6%	5.4%	1.5%	-1.45%
Average labor and management wage	$-665	$1046	$907	$-1290	$-2739
Gross income per acre	18.90	25.65	26.28	16.26	6.86
Operating cost per acre	12.23	12.90	13.43	12.92	9.63
Average value of land per acre	189	180	182	173	149
Total investment per acre	239	226	240	228	191
Investment per farm in:					
Total livestock	3133	2780	2753	2907	2177
Cattle	1310	1083	1436	1421	848
Hogs	879	763	544	628	597
Poultry	151	147	152	131	113
Gross income per farm	4901	6248	5860	4040	1851
Income per farm from:					
Crops	2014	3383	3012	1798	651
Miscellaneous income	55	74	50	72	40
Total livestock	2832	2791	2798	2170	1160
Cattle	1133	724	1007	483	41
Dairy sales	433	593	361	354	395
Hogs	1018	1134	1085	1108	592
Poultry	234	290	314	220	124
Average yield of corn in bu.	40	47	48	40	47
Average yield of oats in bu.	24	44	42	38	47

1/Records from Macon County included from 1927 to 1930.

Investments, Receipts, Expenses, and Earnings on
48 DeWitt, Logan, and Piatt County Farms, 1931

Items	Your farm	Average of 48 farms	16 most profitable farms	16 least profitable farms
CAPITAL INVESTMENTS				
Land		40 132	40 778	35 510
Farm improvements		4 819	4 760	5 032
Livestock total		2 177	1 929	2 477
Horses		568	511	575
Cattle		848	747	1 018
Hogs		597	493	713
Sheep		51	51	72
Poultry		113	127	99
Machinery and equipment		1 773	1 480	1 948
Feed, grain and supplies		2 685	2 141	2 939
Total capital investment	$	$51 586	$51 088	$47 906
RECEIPTS AND NET INCREASES				
Livestock total		1 160	1 259	1 114
Horses		---	---	---
Cattle		41	24	---
Hogs		592	560	638
Sheep		8	25	---
Poultry		53	55	62
Egg sales		71	88	56
Dairy sales		395	507	358
Feed, grain and supplies		651	1 204	56
Labor off farm		38	52	40
Miscellsneous receipts		2	5	2
Total receipts & net increases	$	$ 1 851	$ 2 520	$ 1 212
EXPENSES AND NET DECREASES				
Farm improvements		189	176	177
Horses		50	44	65
Miscellaneous livestock decreases Cattle $3, Sheep $1		---	---	4
Machinery and equipment		438	420	511
Feed, grain and supplies		---	---	---
Livestock expense		40	41	39
Crop expense		212	186	216
Hired labor		365	320	398
Taxes		510	493	486
Miscellaneous expenses		30	31	28
Total expenses & net decreases	$	$ 1 834	$ 1 711	$ 1 924
RECEIPTS LESS EXPENSES	$	$ 17	$ 809	$ -712
Total unpaid labor		765	716	802
Operator's labor		588	567	598
Family labor		177	149	204
Net income from investment and management		-748	93	-1 514
RATE EARNED ON INVESTMENT	%	-1.45%	.18%	-3.16%
Return to capital and operator's labor and management		-160	660	-916
5% of capital invested		2 579	2 554	2 395
LABOR AND MANAGEMENT WAGE	$	$-2 739	$-1 894	$-3 311

Chart for Studying the Efficiency of Various Parts of Your Business
DeWitt, Logan and Piatt Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 48 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

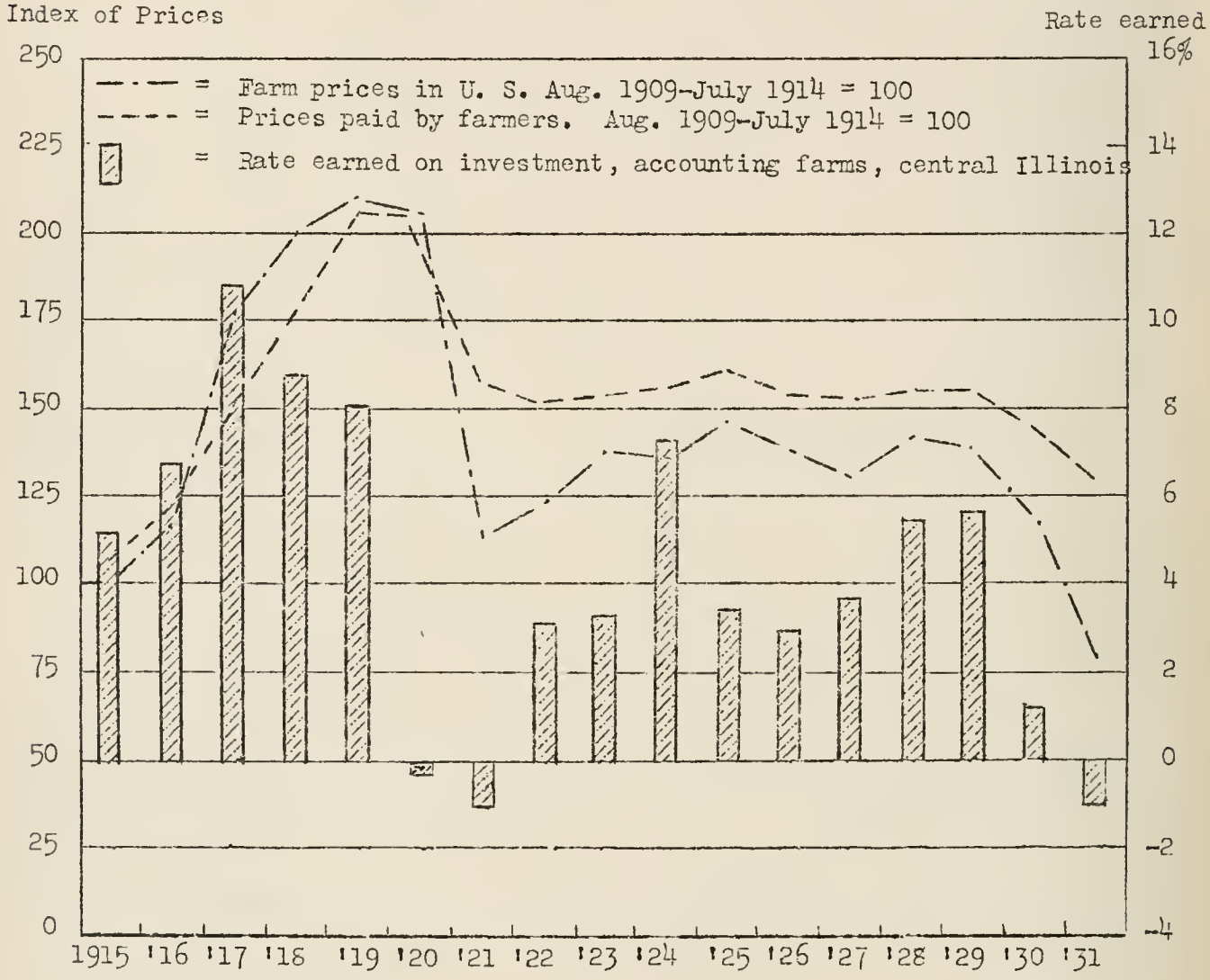
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.50	61	61	43	120	260	85	180	100	12	---	25	70	14	5 400	410
4.50	59	59	41	110	240	80	170	95	11	.15	30	80	13	4 900	390
3.50	57	57	39	100	220	75	160	90	10	.65	35	90	12	4 400	370
2.50	55	55	37	90	200	70	150	85	9	1.15	40	100	11	3 900	350
1.50	53	53	35	80	180	65	140	80	8	1.65	45	110	10	3 400	330
.50	51	51	33	70	160	60	130	75	7	2.15	50	120	9	2 900	310
-.50	49	49	31	60	140	55	120	70	6	2.65	55	130	8	2 400	290
-1.50	47	47	29	50	120	50	110	65	5	3.15	60	140	7	1 900	270
-2.50	45	45	27	40	100	45	100	60	4	3.65	65	150	6	1 400	250
-3.50	43	43	25	30	80	40	90	55	3	4.15	70	160	5	900	230
-4.50	41	41	23	20	60	35	80	50	2	4.65	75	170	4	400	210
-5.50	39	39	21	10	40	30	70	45	1	5.15	80	180	3	---	190
-6.50	37	37	19	0	20	25	60	40	0	5.65	85	190	2	---	170
-7.50	35	35	17	---	0	20	50	35	---	6.15	90	200	1	---	150
-8.50	33	33	15	---	---	15	40	30	---	6.65	95	210	0	---	130

Factors Helping to Analyze the Farm Business on 48 DeWitt, Logan and Piatt County Farms in 1931

Items	Your farm	Average of 48 farms	16 most profitable farms	16 least profitable farms
Size of farm--acres	_____	269.9	262.9	255.4
Percent of land area tillable		91.3	91.3	93.0
Gross receipts per acre	_____	6.86	9.58	4.74
Total expenses per acre		9.63	9.23	10.67
Net receipts per acre		-2.77	.35	-5.93
Value of land per acre		149	155	139
Total investment per acre		191	194	188
Acres in Corn	_____	109.1	120.4	103.7
Oats	_____	37.9	39.9	35.8
Wheat	_____	28.2	29.4	21.8
Soybeans	_____	20.8	13.9	23.4
Crop yields--Corn, bu. per acre	_____	46.6	47.5	44.9
Oats, bu. per acre	_____	47.0	49.0	46.0
Wheat, bu. per acre	_____	29.0	27.1	30.6
Soybeans, bu. per acre	_____	25.0	26.5	21.8
Value of feed fed to productive livestock	_____	1 055	905	1 298
Returns per $100 of feed fed to productive livestock	_____	110	139	86
Returns per $100 invested in:				
Cattle	_____	52	77	37
Poultry	_____	118	121	124
Pigs weaned per litter	_____	6.5	6.3	6.4
Income per litter farrowed	_____	51	52	53
Dairy sales per dairy cow	_____	66	78	55
Investment in productive livestock per acre	_____	5.46	4.84	6.72
Receipts from productive livestock per acre	_____	4.30	4.79	4.35
Power and machinery cost per crop acre	_____	3.15	2.82	3.93
Machinery cost per crop acre	_____	2.00	1.90	2.46
Value of feed fed to horses	_____	204	159	239
Man labor cost per $100 gross income	_____	59	39	96
Man labor cost per acre	_____	4.05	3.74	4.54
Expenses per $100 gross income	_____	140	96	225
Farm improvements cost per acre	_____	.70	.67	.69
Farms with tractor	_____	73%	69%	69%
Excess of sales over cash expenses	_____	1 466	1 741	1 217
Decrease in inventory	_____	1 449	932	1 929

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-TWO FARMS IN MACON COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. E. Wills, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Macon County, was lower in 1931 than in 1930. In 1930 the average net income was $830 per farm while in 1931 there was an average loss of $642 per farm. In 1930, however, $883 per farm was deducted for the labor of the operator and the family as compared with $650 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2,935 in excess of cash expenses as compared with $1,416 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930, while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: The value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*E. H. Walworth, farm adviser in Macon County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 32 Macon County farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 352		$1 972
Feed, grain and supplies	2 420		1 800
Machinery	2 051		1 776
Improvements	4 619		4 496
Total inventory	11 452		10, 044
Decrease in inventory		$1 408	
Total cash sales for 1931		$3 530	
Total cash purchases for 1931		2 114	
Excess of cash sales over cash purchases		1 416	
Decreases in inventory		1 408	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		8	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. There was a drop of 50% in grain prices during 1931 whereas crop yields were much better than the year previous.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) Corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Macon county. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 32 farms included in this study ranged in size from 60 to 400 acres per farm. Only two were smaller than 100 acres and only five were larger than 339 acres. The average size for all farms in the group was 227 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	260 - 299	3
100 - 139	2	300 - 339	3
140 - 179	7	340 - 379	3
180 - 219	5	380 - 419	2
220 - 259	5		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 32 farms included in the present study, the value of bare land per acre was $90 to $129 per acre on 3 farms; $150 to $189 on 26 farms, and $190 to $209 on 3 farms. The average value was $163 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $214 per acre.

As previously stated, the average for all farms indicated a loss of $642 per farm after deducting $650 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2,506 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249; while the operators of 3 farms sustained losses of more than $1,749. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	1	-750 to -1 249	7
749 to 250	2	-1 250 to -1 749	3
249 to -249	6	-1 750 to -2 249	2
-250 to -749	10	-2 250 to -2 749	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 227 acres in size as compared with 202 for the less profitable group. The percentage of the land area tillable, the value per acre for the bare land, and the total investment per acre, were about the same for both groups. The cropping system was practically the same, but there was considerable variation in the crop yields. The most profitable farms grew 7.9 bushels more corn, 6.0 bushels more soybeans, but .7 bushels less oats, and 1.0 bushels less wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $172 per farm lower than the beginning inventory, while on the less profitable farms it was $827 less than the beginning.

The investment per farm in livestock was slightly less on the most profitable farms than on the least profitable but the income was $196 per farm higher while at the same time the increase from the feed and grain account was larger by $1,147. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $157 for the more profitable farms as compared with $111 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. Although there were 5.8 pigs weaned per litter on the more profitable farms and 6.5 on the less profitable farms the returns per litter were $60 and $57 respectively. Dairy sales were $20 per cow higher and returns per $100 invested in poultry $104 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.23 as compared with $5.94 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $9.62 as compared with $12.09 for the least profitable group. The cost of power and machinery was 65 cents per crop acre lower for the more successful farms, but the man labor cost was only 16 cents an acre lower. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $246 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of 61 cents per acre for the more profitable farms as compared with a loss of $6.15 per acre for the less profitable group. For the first group this was a return of .30% on the capital invested in the business and for the second group a loss of 2.86%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, grain and improvements accounts.

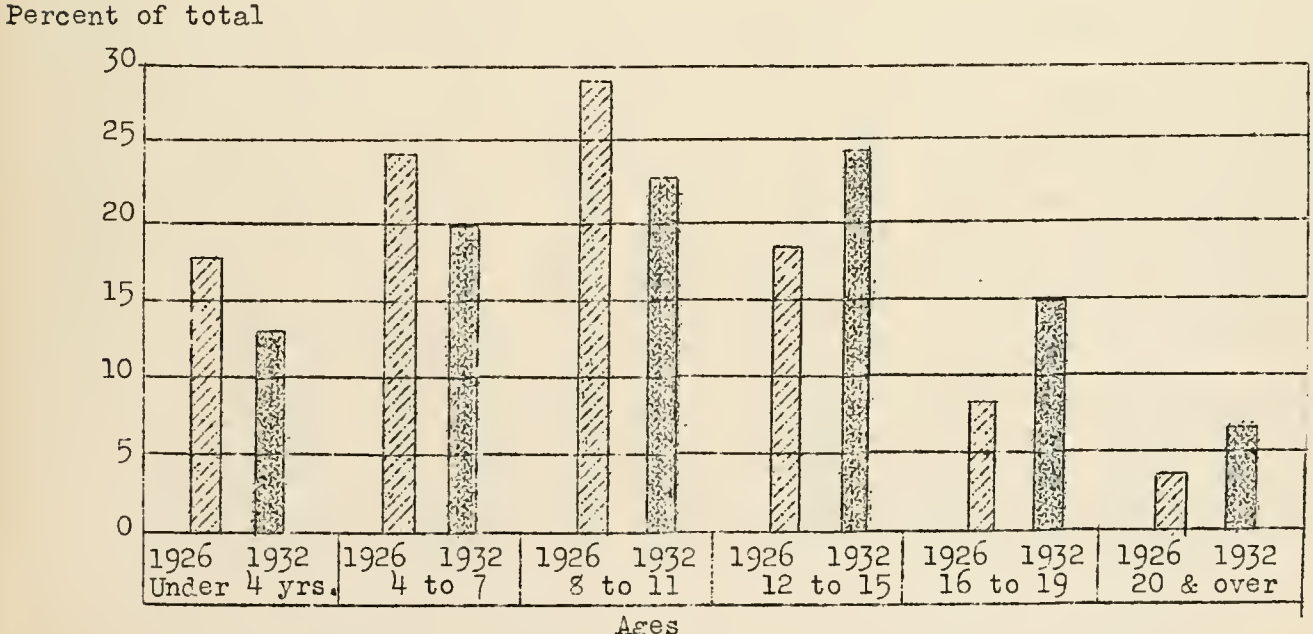
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Macon County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $10 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The income from both crops and livestock was lower in 1931 than in 1930. There was a decrease in the income from crops in spite of higher yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Macon County for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930[1]	1931
Number of farms	31	53	40	56	32
Average size of farms, acres	259	244	223	248	227
Average rate earned, to pay for management, risk and capital	2.8%	5.6%	5.4%	1.5%	-1.32%
Average labor and management wage	$-665	$1 046	$907	$-1 290	$-2 506
Gross income per acre	18.90	25.65	26.28	16.26	7.66
Operating cost per acre	12.23	12.90	13.43	12.92	10.49
Average value of land per acre	189	180	182	173	163
Total investment per acre	239	226	240	228	214
Investment per farm in:					
Total livestock	3 133	2 780	2 753	2 907	2 362
Cattle	1 310	1 083	1 436	1 421	1 227
Hogs	879	763	544	628	452
Poultry	151	147	152	131	142
Gross income per farm	4 901	6 248	5 860	4 040	1 741
Income per farm from:					
Crops	2 014	3 383	3 012	1 798	355
Miscellaneous income	55	74	50	72	89
Total livestock	2 832	2 791	2 798	2 170	1 297
Cattle	1 133	724	1 007	483	428
Dairy sales	433	593	361	354	295
Hogs	1 018	1 134	1 085	1 108	362
Poultry	234	290	314	220	211
Average yield of corn in bu.	40	47	48	40	45
Average yield of oats in bu.	24	44	42	38	46

1/Records from Logan, Piatt and DeWitt counties included for 1927 to 1930.

Investments, Receipts, Expenses, and Earnings on
32 Macon County Farms, 1931

Items	Your farm	Average of 32 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		37 102	36 474	32 820
Farm improvements		4 619	3 751	3 628
Livestock total		2 362	2 143	2 299
Horses		511	500	425
Cattle		1 227	848	1 411
Hogs		452	649	291
Sheep		30	18	44
Poultry		142	128	128
Machinery and equipment		2 051	2 296	2 196
Feed, grain and supplies		2 420	1 961	2 426
Total capital investment	$	$ 48 554	$ 46 625	$ 43 369
RECEIPTS AND NET INCREASES				
Livestock total		1 297	1 291	1 095
Horses		---	---	---
Cattle		428	180	503
Hogs		362	383	293
Sheep		1	---	---
Poultry		81	117	46
Egg sales		130	151	72
Dairy sales		295	460	181
Feed, grain and supplies		355	901	---
Labor off farm		85	126	90
Miscellaneous receipts		4	1	12
Total receipts & net increases	$	$ 1 741	$ 2 319	$ 1 197
EXPENSES AND NET DECREASES				
Farm improvements		194	129	198
Horses		33	19	57
Miscellaneous livestock decreases Sheep		---	---	11
Machinery and equipment		458	420	475
Feed, grain and supplies		---	---	246
Livestock expense		29	22	28
Crop expense		165	140	119
Hired labor		344	302	226
Taxes		482	482	431
Miscellaneous expenses		28	28	21
Total expenses & net decreases	$	$ 1 733	$ 1 542	$ 1 812
RECEIPTS LESS EXPENSES	$	$ 8	$ 777	$ -615
Total unpaid labor		650	638	624
Operator's labor		564	550	555
Family labor		86	88	69
Net income from investment and management		-642	139	-1 239
RATE EARNED ON INVESTMENT	%	-1.32%	.30%	-2.86%
Return to capital and operator's labor and management		-78	689	-684
5% of capital invested		2 428	2 331	2 168
LABOR AND MANAGEMENT WAGE	$	$ -2 506	$ -1 642	$ -2 852

Chart for Studying the Efficiency of Various Parts of Your Business

Macon County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 32 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

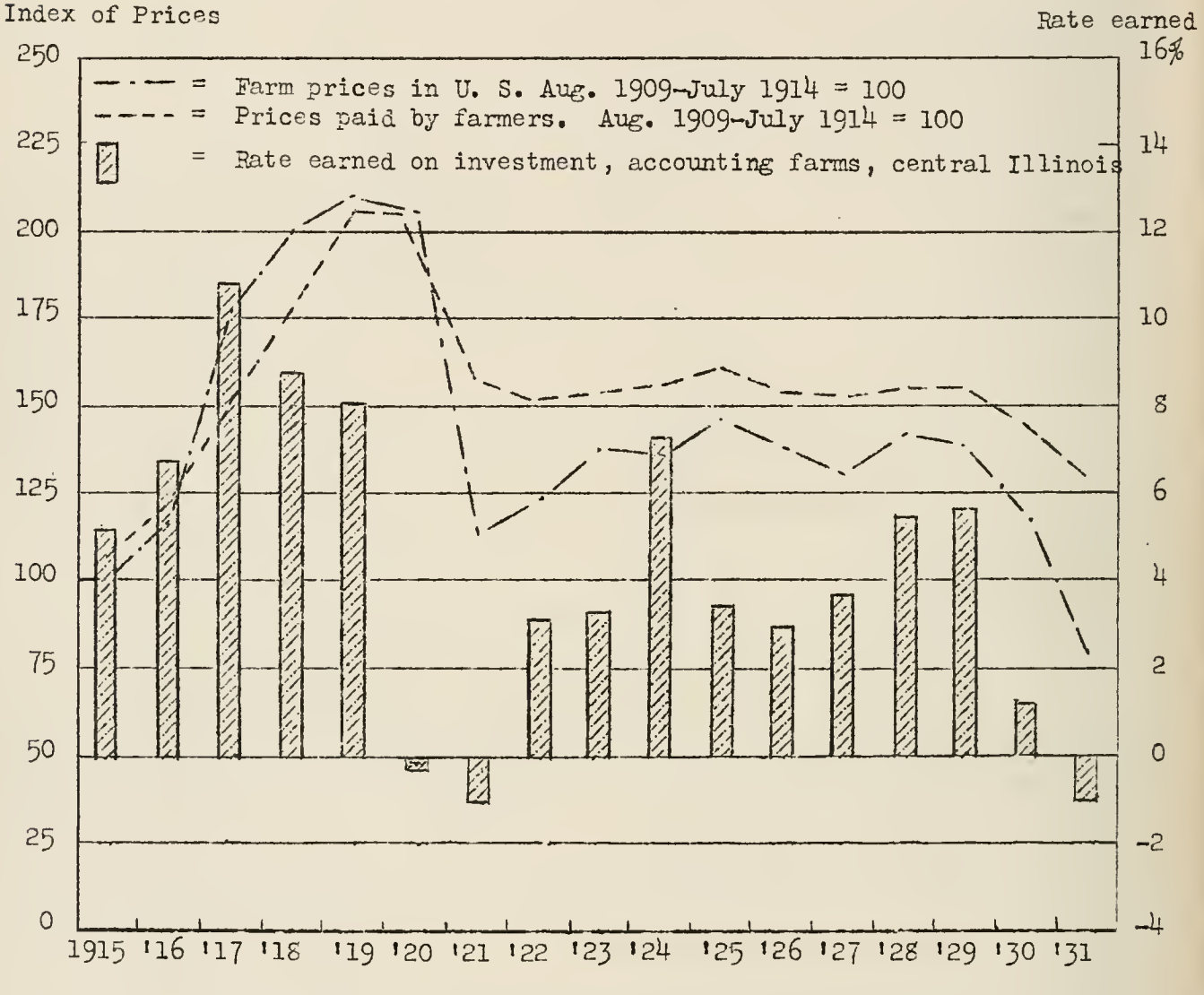
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.70	59	60	45	130	300	85	200	100	14	0	34	70	15	5 200	365
4.70	57	58	43	120	280	80	190	95	13	.50	37	80	14	4 700	345
3.70	55	56	41	110	260	75	180	90	12	1.00	40	90	13	4 200	325
2.70	53	54	39	100	240	70	170	85	11	1.50	43	100	12	3 700	305
1.70	51	52	37	90	220	65	160	80	10	2.00	46	110	11	3 200	285
.70	49	50	35	80	200	60	150	75	9	2.50	49	120	10	2 700	265
-.30	47	48	33	70	180	55	140	70	8	3.00	52	130	9	2 200	245
-1.30	45	46	31	60	160	50	130	65	7	3.50	55	140	8	1 700	225
-2.30	43	44	29	50	140	45	120	60	6	4.00	58	150	7	1 500	205
-3.30	41	42	27	40	120	40	110	55	5	4.50	61	160	6	700	185
-4.30	39	40	25	30	100	35	100	50	4	5.00	64	170	5	200	165
-5.30	37	38	23	20	80	30	90	45	3	5.50	67	180	4	---	145
-6.30	35	36	21	10	60	25	80	40	2	6.00	70	190	3	---	125
-7.30	33	34	19	0	40	20	70	35	1	6.50	73	200	2	---	105
-8.30	31	32	17	--	20	15	60	30	0	7.00	76	210	1	---	85

Factors Helping to Analyze the Farm Business on
32 Macon County Farms in 1931

Items	Your farm	Average of 32 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	227.2	226.6	201.5
Percent of land area tillable		94.8	92.7	95.7
Gross receipts per acre	_____	7.66	10.23	5.94
Total expenses per acre		10.49	9.62	12.09
Net receipts per acre		-2.83	.61	-6.15
Value of land per acre		163	161	163
Total investment per acre		214	206	215
Acres in Corn	_____	98.5	93.2	92.6
Oats	_____	20.3	21.5	16.0
Wheat	_____	21.6	28.4	12.7
Soybeans	_____	28.8	25.2	35.6
Crop yields--Corn, bu. per acre	_____	44.6	48.2	40.3
Oats, bu. per acre	_____	45.6	43.6	44.3
Wheat, bu. per acre	_____	31.0	31.4	32.4
Soybeans, bu. per acre	_____	21.9	26.6	20.6
Value of feed fed to productive livestock	_____	994	820	974
Returns per $100 of feed fed to productive livestock	_____	130	157	111
Returns per $100 invested in:				
Cattle	_____	62	84	54
Poultry	_____	157	209	105
Pigs weaned per litter	_____	6.2	5.8	6.5
Income per litter farrowed	_____	48	60	57
Dairy sales per dairy cow	_____	64	72	52
Investment in productive livestock per acre	_____	7.40	5.90	8.19
Receipts from productive livestock per acre	_____	5.71	5.70	5.38
Power and machinery cost per crop acre	_____	3.52	3.30	3.95
Machinery cost per crop acre	_____	2.42	2.28	2.72
Value of feed fed to horses	_____	177	171	158
Man labor cost per $100 gross income	_____	55	38	68
Man labor cost per acre	_____	4.22	3.91	4.07
Expenses per $100 gross income	_____	137	94	204
Farm improvements cost per acre	_____	.85	.57	.98
Farms with tractor	_____	75%	80%	70%
Excess of sales over cash expenses	_____	1 416	1 984	1 171
Decrease in inventory	_____	1 408	1 207	1 786

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-FOUR FARMS IN CHAMPAIGN COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Champaign County, was lower in 1931 than in 1930. In 1930 the average net income was $766 per farm while in 1931 there was an average loss of $503 per farm. In 1930, however, $820 per farm was deducted for the labor of the operator and the family as compared with $709 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2916 in excess of cash expenses as compared with $1428 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*C. C. Burns, farm adviser in Champaign County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Champaign County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$1 735	$1 356
Feed, grain and supplies	2 389	1 883
Machinery	1 890	1 727
Improvements	3 859	3 685
Total inventory	9 873	8 651
Decrease in inventory		-$1 222

Total cash sales for 1931	-$2 875
Total cash purchases for 1931	1 447
Excess of cash sales over cash purchases	1 428
Decrease in inventory	1 222
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	206

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Champaign County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 34 farms included in this study ranged in size from 80 to 472 acres per farm. Six were smaller than 140 acres and 5 were larger than 340 acres. The average size for all farms in the group was 233 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	300 - 339	2
100 - 139	4	340 - 379	2
140 - 179	5	380 - 419	2
180 - 219	4	420 - 459	0
220 - 259	7	460 - 499	1
260 - 299	5		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 34 farms included in the present study, the value of bare land per acre was $90 to $129 on 4 farms; $130 to $169 on 8 farms, and $170 to $209 on 22 farms. The average value was $170 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $213 per acre.

As previously stated, the average for all farms indicated a loss of $503 per farm after deducting $709 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2399 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Five of the farms netted their operators incomes of more than $249; while the operators of 2 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$ 749 to 250	5	$ -750 to -1 249	9
249 to -249	4	-1 250 to -1 749	2
-250 to -749	14		

A comparison of the 11 farms having the highest rate earned on investment with the 11 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 300 acres in size as compared with 164 for the less profitable group. The larger farms had the same percentage of the land area tillable as the smaller farms but a lower value per acre for the bare land. The more profitable farms grew on the average 26 acres of wheat per farm while the low profit farms grew none. In other respects the cropping systems were quite comparable for the two groups. The most profitable farms grew 2.2 bushels more corn, 5.5 bushels more oats, but 3.7 bushels less soybeans per acre than did the least profitable farms. Although the more profitable farms had on the average 2481 bushels more corn and 701 bushels more oats at the end of the year than at the beginning, they still had a decrease in the grain inventory of $492 per farm.

The investment per farm in livestock was $162 more on the most profitable farms than on the least profitable and the income was $211 per farm higher while at the same time the increase from the feed and grain account was larger by $1301. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $127 for the more profitable farms as compared with $100 for the less profitable farms. There were 6.6 pigs weaned per litter on the more profitable farms but only 5.9 on the less profitable farms, while the returns per $100 invested in poultry were $26 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $8.30 as compared with $5.53 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $7.96 as compared with $11.58 for the least profitable group. The cost of power and machinery was $.66 per crop acre lower for the more successful farms, and the man labor cost was $2.01 an acre lower. The expense per acre for improvements was also lower for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $.34 per acre for the more profitable farms as compared with a loss of $6.05 per acre for the less profitable group. For the first group this was a return of .18% on the capital invested in the business and for the second group a loss of 2.63%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

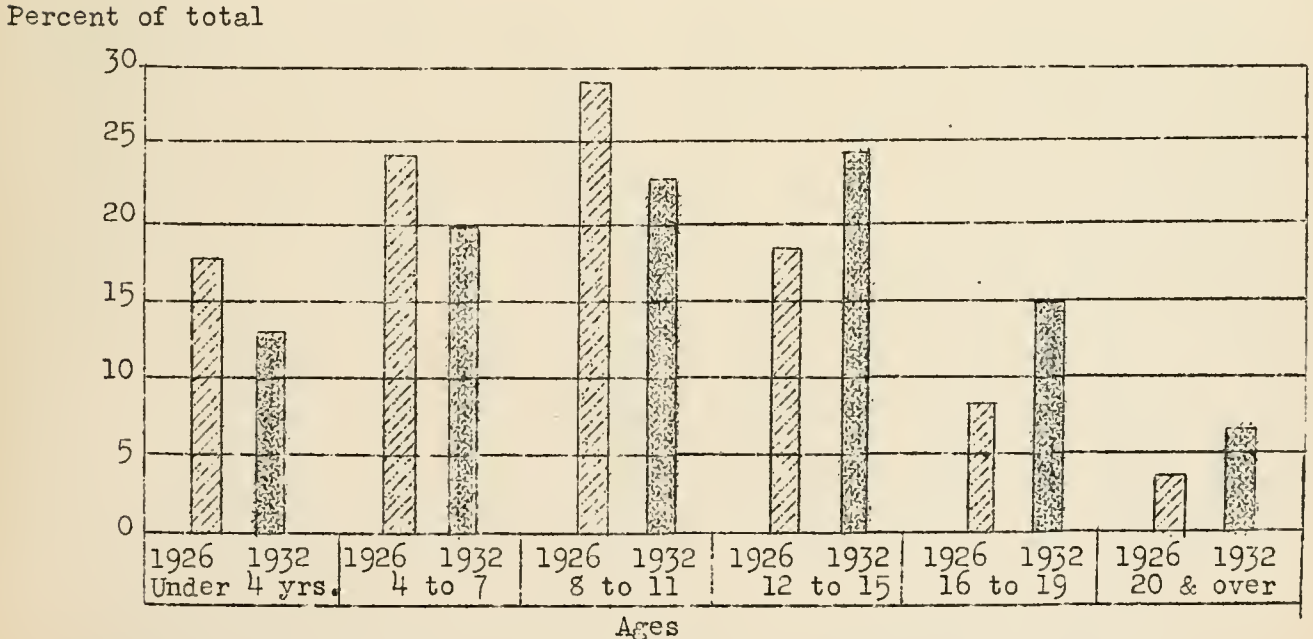
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Champaign County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931, although the average land value was $11 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The income from both crops and livestock suffered because of the slump in prices during 1931.

Comparison of Earnings and Investments on Accounting Farms in Champaign County for 1927-1931

Items	1927	1928[1]	1929[2]	1930	1931
Number of farms	30	36	31	38	34
Average size of farms, acres	229	215	232	239	233
Average rate earned, to pay for management, risk and capital	4.4%	6.2%	6.5%	1.4%	-1.0%
Average labor and management wage	$304	$1270	$1513	$-1344	$-2399
Gross income per acre	23.05	25.96	27.50	15.26	7.47
Operating cost per acre	11.92	12.51	12.36	12.05	9.63
Average value of land per acre	208	173	179	181	170
Total investment per acre	255	218	232	235	213
Investment per farm in:					
Total livestock	2243	2259	2357	2238	1735
Cattle	653	917	993	1003	633
Hogs	352	472	418	356	346
Poultry	161	151	148	140	104
Gross income per farm	5279	5582	6381	3645	1737
Income per farm from:					
Crops	3651	3242	3990	2126	918
Miscellaneous income	48	109	95	62	49
Total livestock	1580	2231	2296	1457	770
Cattle	257	503	485	244	24
Dairy sales	442	518	503	353	246
Hogs	513	877	1054	662	342
Poultry	318	301	258	163	150
Average yield of corn in bu.	43	48	47	35	46
Average yield of oats in bu.	28	41	40	36	46

1/ Records from Vermilion county included for 1928.

2/ Records from Piatt county included for 1929.

Investments, Receipts, Expenses, and Earnings on
Champaign County Farms, 1931

Items	Your farm	Average of 34 farms	11 most profitable farms	11 least profitable farms
CAPITAL INVESTMENTS				
Land		39 659	47 788	29 675
Farm improvements		3 859	3 598	3 206
Livestock total		1 735	1 848	1 686
Horses		624	641	613
Cattle		633	630	678
Hogs		346	464	257
Sheep		28	10	48
Poultry		104	103	90
Machinery and equipment		1 890	2 089	1 389
Feed, grain and supplies		2 389	2 884	1 847
Total capital investment	$	$49 532	$58 207	$37 803
RECEIPTS AND NET INCREASES				
Livestock total		770	767	556
Horses		--	--	--
Cattle		24	103	--
Hogs		342	371	230
Sheep		8	9	15
Poultry		48	41	42
Egg sales		102	121	75
Dairy sales		246	122	194
Feed, grain and supplies		918	1 632	331
Labor off farm		40	71	15
Miscellaneous receipts		9	17	6
Total receipts & net increases	$	$ 1 737	$ 2 487	$ 908
EXPENSES AND NET DECREASES				
Farm improvements		217	212	186
Horses		62	103	43
Miscellaneous livestock decreases cattle		--	--	103
Machinery and equipment		355	372	209
Feed, grain and supplies		--	--	--
Livestock expense		25	21	12
Crop expense		138	137	132
Hired labor		268	273	116
Taxes		440	544	326
Miscellaneous expense		26	23	24
Total expenses & net decreases	$	$ 1 531	$ 1 685	$ 1 151
RECEIPTS LESS EXPENSES	$	$ 206	$ 802	$ -243
Total unpaid labor		709	700	750
Operator's labor		581	600	600
Family labor		128	100	150
Net income from investment and management		-503	102	-993
RATE EARNED ON INVESTMENT	%	-1.02%	.18%	-2.63%
Return to capital and operator's labor and management		78	702	-393
5% of capital invested		2 477	2 910	1 890
LABOR AND MANAGEMENT WAGE	$	$-2 399	$-2 208	$-2 283

Chart for Studying the Efficiency of Various Parts of Your Business
Champaign County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 34 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

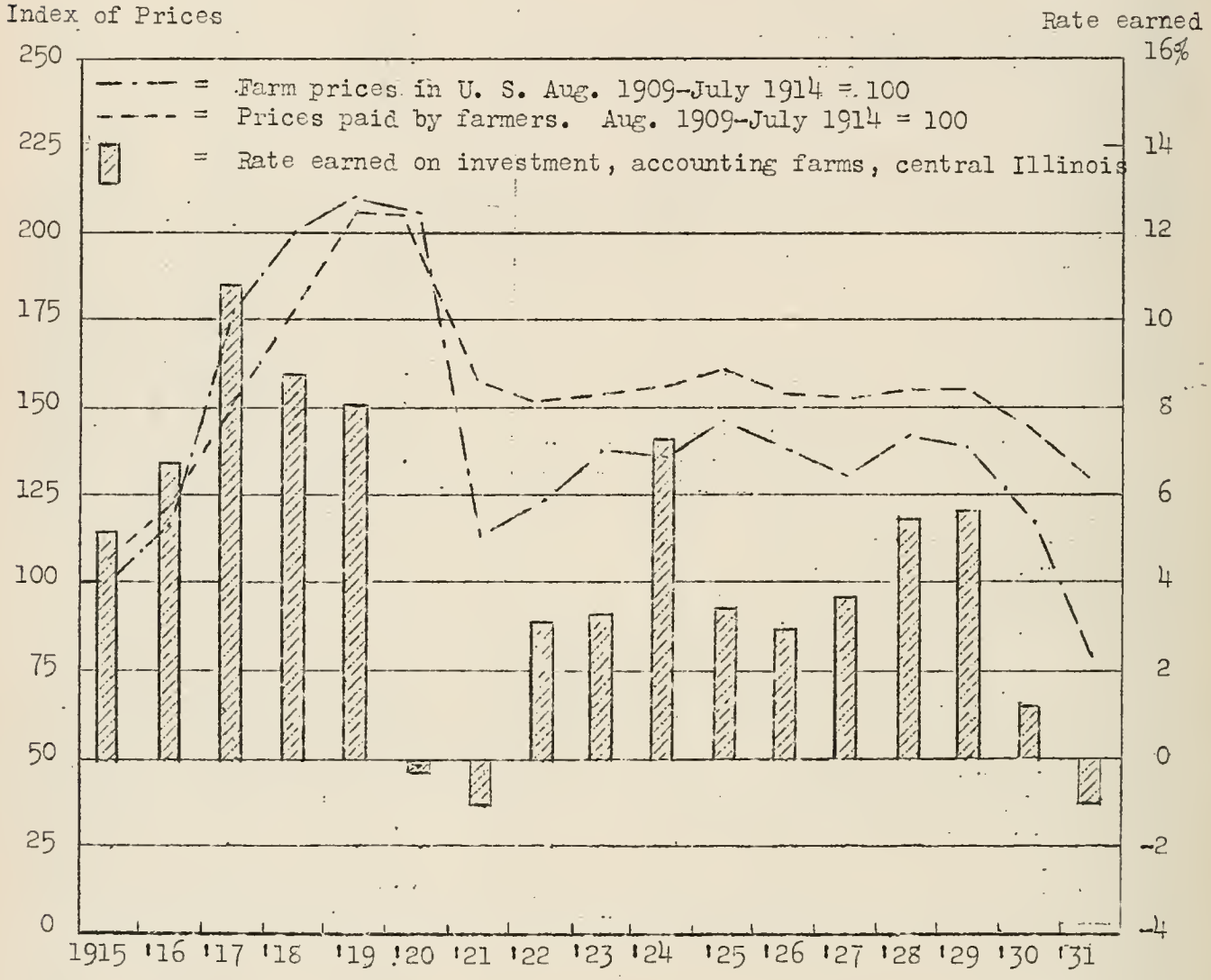
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Soybeans	Cattle	Poultry										
6.0	60	60	42	80	225	80	205	90	11	---	34	60	14	3 800	370
5.0	58	58	40	75	215	75	195	85	10	---	37	70	13	3 500	350
4.0	56	56	38	70	205	70	185	80	9	.40	40	80	12	3 200	330
3.0	54	54	36	65	195	65	175	75	8	.90	43	90	11	2 900	310
2.0	52	52	34	60	185	60	165	70	7	1.40	46	100	10	2 600	290
1.0	50	50	32	55	175	55	155	65	6	1.90	49	110	9	2 300	270
.0	48	48	30	50	165	50	145	60	5	2.40	52	120	8	2 000	250
-1.0	46	46	28	45	155	45	135	55	4	2.90	55	130	7	1 700	230
-2.0	44	44	26	40	145	40	125	50	3	3.40	58	140	6	1 400	210
-3.0	42	42	24	35	135	35	115	45	2	3.90	61	150	5	1 100	190
-4.0	40	40	22	30	125	30	105	40	1	4.40	64	160	4	800	170
-5.0	38	38	20	25	115	25	95	35	0	4.90	67	170	3	500	150
-6.0	36	36	18	20	105	20	85	30	---	5.40	70	180	2	200	130
-7.0	34	34	16	15	95	15	75	25	---	5.90	73	190	1	----	110
-8.0	32	32	14	10	85	10	65	20	---	6.40	76	200	0	----	90

Factors Helping to Analyze the Farm Business on
34 Champaign County Farms in 1931

Items	Your farm	Average of 34 farms	11 most profitable farms	11 least profitable farms
Size of farm--acres	_____	232.6	299.5	164.1
Percent of land area tillable		96.2	96.6	96.2
Gross receipts per acre	_____	7.47	8.30	5.53
Total expenses per acre		9.63	7.96	11.58
Net receipts per acre		-2.16	.34	-6.05
Value of land per acre		170	160	181
Total investment per acre		213	195	230
Acres in Corn	_____	110.1	145.6	76.1
Oats	_____	38.2	48.5	32.2
Wheat	_____	15.7	26.2	--
Soybeans	_____	26.3	38.1	16.2
Crop yields--Corn, bu. per acre	_____	46.1	47.1	44.9
Oats, bu. per acre	_____	46.2	47.3	41.8
Wheat, bu. per acre	_____	24.8	23.6	--
Soybeans, bu. per acre	_____	27.6	26.4	30.1
Value of feed fed to productive livestock	_____	570	606	454
Returns per $100 of feed fed to productive livestock	_____	135	127	100
Returns per $100 invested in:				
Cattle	_____	47	38	16
Poultry	_____	154	160	134
Pigs weaned per litter	_____	6.5	6.6	5.9
Income per litter farrowed	_____	46	41	34
Dairy sales per dairy cow	_____	55	36	42
Investment in productive livestock per acre	_____	4.16	3.47	5.42
Receipts from productive livestock per acre	_____	3.31	2.56	2.76
Power and machinery cost per crop acre	_____	2.89	2.39	3.05
Machinery cost per crop acre	_____	1.78	1.38	1.60
Value of feed fed to horses	_____	160	168	147
Man labor cost per $100 gross income	_____	54	38	94
Man labor cost per acre	_____	4.03	3.18	5.19
Expenses per $100 gross income	_____	129	96	209
Farm improvements cost per acre	_____	.93	.71	1.13
Farms with tractor	_____	71%	91%	45%
Excess of sales over cash expenses	_____	1 428	2 028	1 055
Decrease in inventory	_____	1 222	1 226	1 298

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-THREE FARMS IN FORD COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. F. Shoot and H. C. M. Case*

The average of farm earnings, on account keeping farms in Ford County, was lower in 1931 than in 1930. In 1930 the average net income was $1,243 per farm while in 1931 there was an average income of $66 per farm. In 1930, however, $866 per farm was deducted for the labor of the operator and the family as compared with $764 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $3,146 in excess of cash expenses as compared with $1,954 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*W. F. Purnell, farm adviser in Ford County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Ford County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$2 214	$1 854	
Feed, grain and supplies	2 392	1 945	
Machinery	1 822	1 650	
Improvements	4 545	4 400	
Total inventory	$10 973	$9 849	
Decrease in inventory			$1 124
Total cash sales for 1931			$3 905
Total cash purchases for 1931			1 951
Excess of cash sales over cash purchases			1 954
Decrease in inventory			1 124
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			830

An increase in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Ford County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown

that average earnings for all farms are lower than for farms included in this accounting service.

The 33 farms included in this study ranged in size from 120 to 640 acres per farm. Only 4 were smaller than 140 acres and only 4 were larger than 380 acres. The average size for all farms in the group was 275 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
100 - 139	4	300 - 339	4
140 - 179	8	340 - 379	5
180 - 219	0	380 - 419	1
220 - 259	5	420 - 459	0
260 - 299	3	460 - 499	1
		500 - 540	2

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 33 farms included in the present study, the value of bare land per acre was $70 to $129 on 2 farms; $130 to $169 on 14 farms, and $170 to $209 on 17 farms. The average value was $171 per acre for the bare land. The average investment, including land, improvements, live-stock, machinery and grain, was $211 per acre.

As previously stated, the average for all farms indicated a net income of $66 per farm after deducting $764 for the labor of the operator and the family. This left a return of .11% for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2,269 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the 33 farms in this study returned enough to pay for the operator's labor at hired man's wages and .11% for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Nine of the farms netted their operators incomes of more than $749; while the operators of 8 farms sustained losses of more than $749. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms[1]	Net income per farm	Number of farms
$1 749 to 1 250	4	$249 to -249	8
1 249 to 750	4	-250 to -749	6
749 to 250	2	-750 to -1 249	7

1/One farm had an income of $3,890 and one farm a loss of $2,514.

A comparison of the 11 farms having the highest rate earned on investment with the 11 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 290 acres in size as compared with 198 for the less profitable group. The larger farms had the same percentage of the land area tillable as the smaller farms, but a higher value per acre for the bare land. The larger farms averaged 111 acres of corn, 59 acres of oats, and 23 acres of wheat per farm whereas the smaller farms grew 85 acres of corn, 59 acres of oats, and no wheat. The corn yields were the same for both groups but the oats averaged 6.5 bushels per acre higher on the more profitable farms. On the more profitable farms the closing inventory of feed and grain was $170 per farm less than the beginning inventory, while on the less profitable farms it was $505 less than the beginning.

The investment per farm in livestock was $928 more on the most profitable farms than on the least profitable and the income was $852 per farm higher while at the same time the increase from the feed and grain account was larger by $2,220. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $170 for the more profitable farms as compared with $98 for the less profitable farms. The more profitable farms averaged $804 of dairy sales per farm as compared with $191 for the less profitable farms. The dairy sales per cow were $71 higher on the more profitable farms while the hogs and poultry were more efficient on the less profitable farms. The gross receipts per acre were $14.48 and $5.53 respectively.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $9.81 as compared with $10.61 for the least profitable group. The cost of power and machinery was 51 cents per crop acre lower for the more successful farms, and the man labor cost was 67 cents an acre lower. The expense per acre for improvements was also lower for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $4.67 per acre for the more profitable farms as compared with a loss of $5.08 per acre for the less profitable group. For the first group this was a return of 2.01% on the capital invested in the business and for the second group a loss of 2.51%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

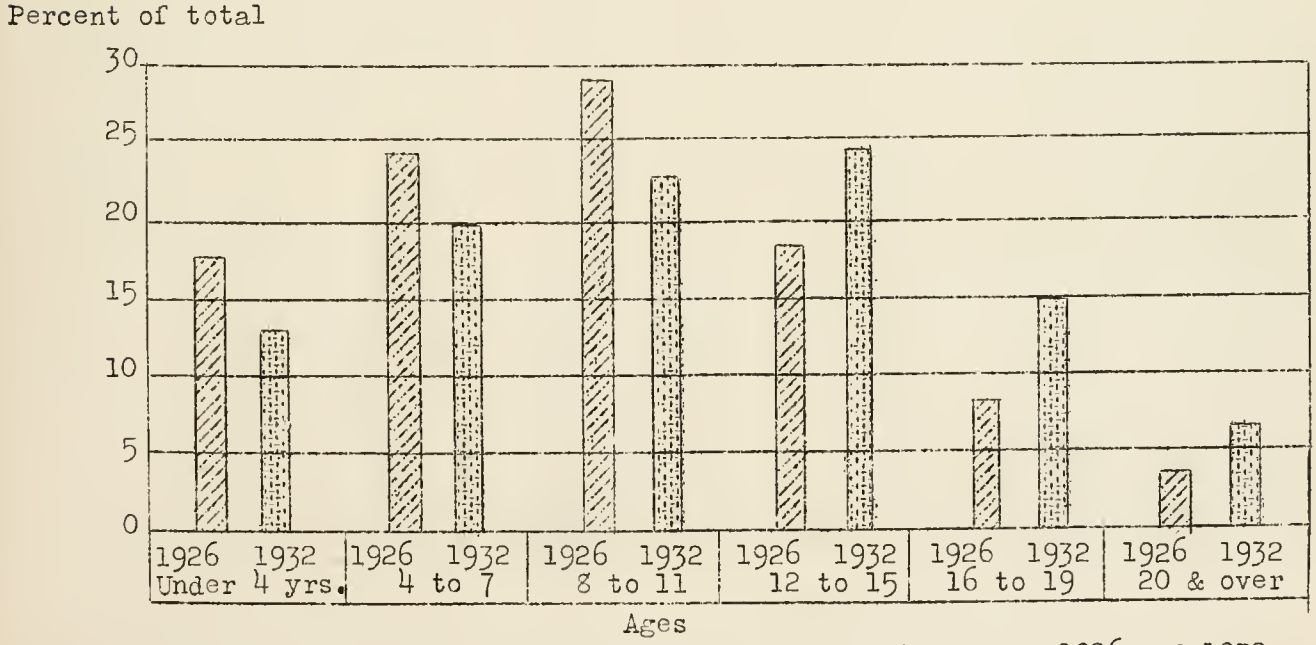
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Ford County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $14 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The increase from both crops and livestock was lower in 1931 than in 1930. There was a decrease in crops in spite of higher crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Ford County for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930	1931
Number of farms	28	34	41	32	33
Average size of farms, acres	233	259	271	264	275
Average rate earned, to pay for management, risk and capital	4.1%	6.0%	5.2%	2.0%	.11%
Average labor and management wage	$218	$1282	$826	$-1141	$-2269
Gross income per acre	21.83	25.17	23.80	15.62	9.62
Operating cost per acre	11.72	11.36	12.05	10.90	9.38
Average value of land per acre	195	185	179	185	171
Total investment per acre	244	231	226	231	211
Investment per farm in:					
Total livestock	2549	2526	2498	2244	2214
Cattle	767	1057	942	965	976
Hogs	730	522	493	372	387
Poultry	182	191	175	138	137
Gross income per farm	5096	6519	6451	4116	2650
Income per farm from:					
Crops	2945	3929	3727	2287	1462
Miscellaneous income	47	72	83	119	33
Total livestock	2104	2518	2641	1710	1155
Cattle	421	401	506	222	108
Dairy sales	460	656	585	506	409
Hogs	855	1035	1061	741	451
Poultry	307	365	412	200	182
Average yield of corn in bu.	39	46	42	35	44
Average yield of oats in bu.	28	37	38	30	47

1/ A few records from Iroquois County included for 1927, 1928, and 1929.

Investments, Receipts, Expenses, and Earnings on
33 Ford County Farms, 1931

Items	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farms
CAPITAL INVESTMENTS				
Land		47 181	55 991	31 301
Farm improvements		4 545	4 867	3 656
Livestock total		2 214	2 590	1 662
Horses		688	844	500
Cattle		976	1 011	734
Hogs		387	587	275
Sheep		26	34	6
Poultry		137	114	147
Machinery and equipment		1 822	1 851	1 335
Feed, grain and supplies		2 392	2 294	2 106
Total capital investment	$	$58 154	$67 593	$40 060
RECEIPTS AND NET INCREASES				
Livestock total		1 155	1 580	728
Horses		---	27	---
Cattle		108	75	51
Hogs		451	519	289
Sheep		5	9	2
Poultry		59	70	53
Egg sales		123	76	142
Dairy sales		409	804	191
Feed, grain and supplies		1 462	2 581	361
Labor off farm		28	41	5
Miscellaneous receipts		5	---	---
Total receipts & net increases	$	$ 2 650	$ 4 202	$ 1 094
EXPENSES AND NET DECREASES				
Farm improvements		257	272	208
Horses		24	---	56
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		458	489	298
Feed, grain and supplies		---	---	---
Livestock expense		37	49	30
Crop expense		175	221	124
Hired labor		326	434	217
Taxes		514	555	410
Miscellaneous expenses		29	29	25
Total expenses & net decreases	$	$ 1 820	$ 2 049	$ 1 368
RECEIPTS LESS EXPENSES	$	$ 830	$ 2 153	$ -274
Total unpaid labor		764	797	731
Operator's labor		573	518	600
Family labor		191	279	131
Net income from investment and management		66	1 356	-1 005
RATE EARNED ON INVESTMENT	%	.11%	2.01%	-2.51%
Return to capital and operator's labor and management		639	1 874	-405
5% of capital invested		2 908	3 380	2 003
LABOR AND MANAGEMENT WAGE	$	$-2 269	$-1 506	$-2 408

Chart for Studying the Efficiency of Various Parts of Your Business
Ford County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 33 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

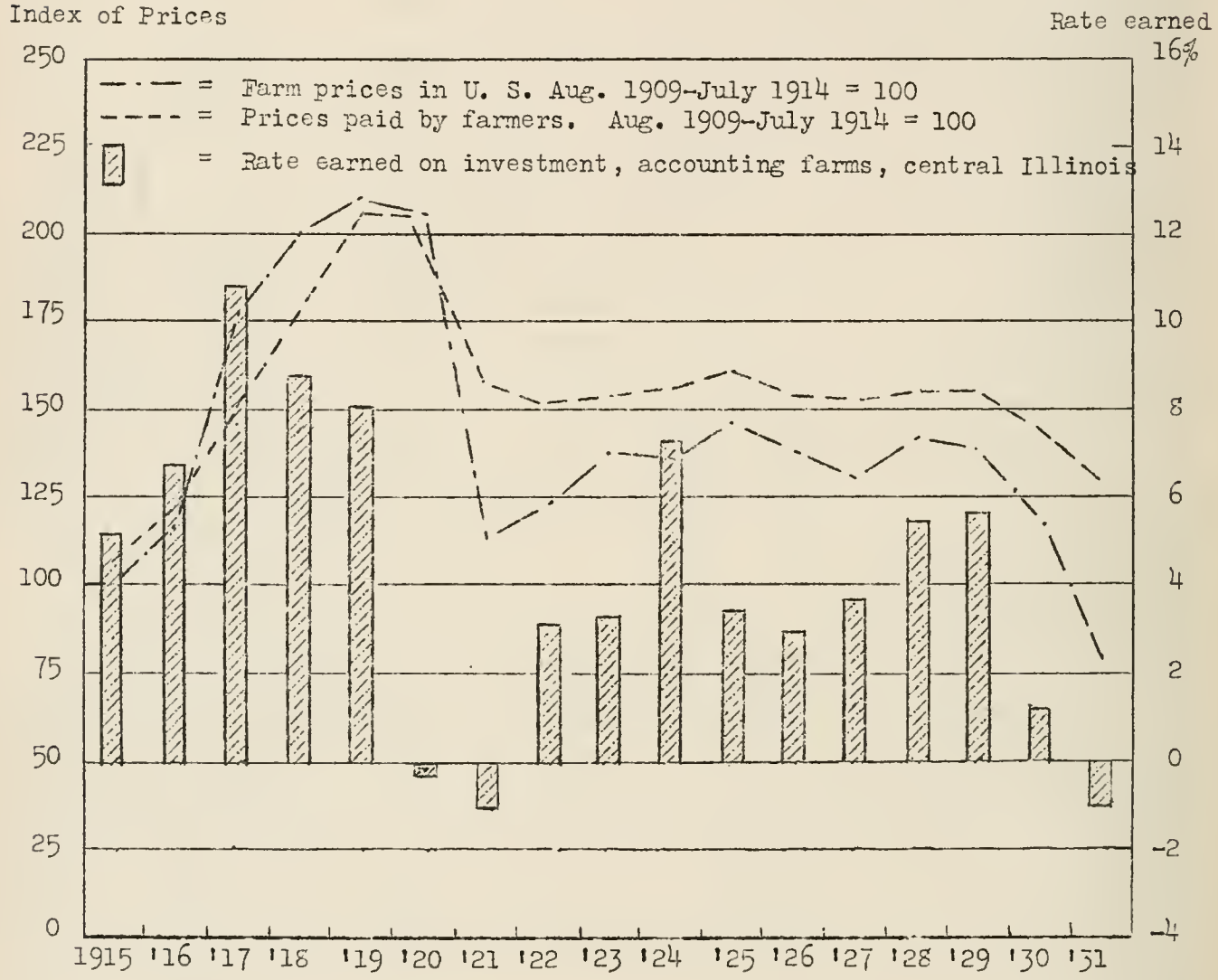
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
7.0	58	61	42	130	285	90	195	145	12	---	5	30	24	6 000	415
6.0	56	59	40	120	265	85	185	135	11	0	10	40	22	5 500	395
5.0	54	57	38	110	245	80	175	125	10	.50	15	50	20	5 000	375
4.0	52	55	36	100	225	75	165	115	9	1.00	20	60	18	4 500	355
3.0	50	53	34	90	205	70	155	105	8	1.50	25	70	16	4 000	335
2.0	48	51	32	80	185	65	145	95	7	2.00	30	80	14	3 500	315
1.0	46	49	30	70	165	60	135	85	6	2.50	35	90	12	3 000	295
0.0	44	47	28	60	145	55	125	75	5	3.00	40	100	10	2 500	275
-1.0	42	45	26	50	125	50	115	65	4	3.50	45	110	8	2 000	255
-2.0	40	43	24	40	105	45	105	55	3	4.00	50	120	6	1 500	235
-3.0	38	41	22	30	85	40	95	45	2	4.50	55	130	4	1 000	215
-4.0	36	39	20	20	65	35	85	35	1	5.00	60	140	2	500	195
-5.0	34	37	18	10	45	30	75	25	0	5.50	65	150	0	0	175
-6.0	32	35	16	0	25	25	65	15	—	6.00	70	160	---	---	155
-7.0	30	33	14	---	5	20	55	5	--	6.50	75	170	--	---	135

Factors Helping to Analyze the Farm Business on
33 Ford County Farms in 1931

Items	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farms
Size of farm--acres	_____	275.4	290.3	197.8
Percent of land area tillable		95.3	94.6	94.8
Gross receipts per acre	_____	9.62	14.48	5.53
Total expenses per acre		9.38	9.81	10.61
Net receipts per acre		.24	4.67	-5.08
Value of land per acre		171	193	158
Total investment per acre		211	233	203
Acres in Corn	_____	111.9	110.6	85.3
Oats	_____	66.7	59.1	58.9
Wheat	_____	13.9	22.6	---
Soybeans	_____	1.4	---	3.5
Crop yields--Corn, bu. per acre	_____	44.1	46.1	46.2
Oats, bu. per acre	_____	46.9	50.4	43.9
Wheat, bu. per acre	_____	28.1	30.2	---
Value of feed fed to productive livestock	_____	926	915	745
Returns per $100 of feed fed to productive livestock	_____	125	170	98
Returns per $100 invested in:				
Cattle	_____	57	91	35
Poultry	_____	145	134	141
Pigs weaned per litter	_____	6.8	6.4	7.0
Income per litter farrowed	_____	53	50	52
Dairy sales per dairy cow	_____	76	113	42
Investment in productive livestock per acre	_____	5.06	5.46	5.46
Receipts from productive livestock per acre	_____	4.19	5.35	3.68
Power and machinery cost per crop acre	_____	3.02	2.89	3.40
Machinery cost per crop acre	_____	1.99	2.01	1.87
Value of feed fed to horses	_____	212	242	188
Man labor cost per $100 gross income	_____	40	28	86
Man labor cost per acre	_____	3.86	4.10	4.77
Expenses per $100 gross income	_____	98	68	192
Farm improvements cost per acre	_____	.93	.94	1.05
Farms with tractor	_____	85%	100%	55%
Excess of sales over cash expenses	_____	1954	3079	683
Decrease in inventory	_____	1124	926	957

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON FORTY-ONE FARMS IN IROQUOIS AND KANKAKEE COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Iroquois and Kankakee counties was lower in 1931 than in 1930. In 1930 the average net income was $106 per farm while in 1931 there was an average loss of $545 per farm. In 1930, however, $830 per farm was deducted for the labor of the operator and the family as compared with $811 for 1931. The value of the unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2244 in excess of cash expenses as compared with $1542 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*C. E. Johnson and J. S. Collier, farm advisers in Iroquois and Kankakee counties cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 41 farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31 1931
Total livestock	$2 422		$2 070
Feed, grain and supplies	2 613		1 984
Machinery	1 633		1 490
Improvements	5 503		5 351
Total inventory	12 171		10 895
Decrease in inventory		$1 276	
Total cash sales for 1931		$3 376	
Total cash purchase for 1931		1 834	
Excess of cash sales over cash purchases		1 542	
Decrease in inventory		1 276	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		266	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Iroquois and Kankakee counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 41 farms included in this study ranged in size from 97 to 440 acres per farm. Three were smaller than 140 acres and 8 were larger than 340 acres. The average size for all farms in the group was 242 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	260 - 299	8
100 - 139	2	300 - 339	2
140 - 179	9	340 - 379	5
180 - 219	7	380 - 419	2
220 - 259	4	420 - 459	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 41 farms included in the present study, the value of bare land per acre was $90 to $129 on 22 farms; $130 to $169 on 14 farms, and $170 to $209 on 5 farms. The average value was $134 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $184 per acre.

As previously stated, the average for all farms indicated a loss of $545 per farm after deducting $811 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2172 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Ten of the farms netted their operators incomes of more than $249; while the operators of 8 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	2	- 750 to -1 249	6
749 to 250	8	-1 250 to -1 749	3
249 to -249	8	-1 750 to -2 249	2
-250 to -749	9	-2 250 to -2 749	1
		-2 750 to -3 249	2

A comparison of the 14 farms having the highest rate earned on investment with the 14 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 249 acres in size as compared with 238 for the less profitable group. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The least profitable farms grew 1.7 bushels more corn, 6.0 bushels more oats, and 2.5 bushels more wheat per acre than did the most profitable farms. The least profitable farms had 3346 bushels of corn and 2255 bushels of oats on hand at the beginning of the year as compared with 2408 bushels of corn and 1103 bushels of oats for the most profitable farms. In spite of the better crop yields on the low profit farms, there was a decrease in the grain inventory of $1094 as compared with $333 for the high profit farms. The larger decrease was due to the larger quantity of grain on which to take the depreciation.

The investment per farm in livestock was $631 less on the most profitable farms than on the least profitable but the income was $1058 per farm higher while at the same time the increase from the feed and grain account was larger by $911. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $211 for the more profitable farms as compared with $74 for the less profitable farms. There were 6.7 pigs weaned per litter on the more profitable farms and 6.6 on the less profitable farms. Dairy sales were $66 per cow higher and returns per $100 invested in poultry $62 higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $11.85 as compared with $3.95 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed but little difference. The average expense per acre for the most profitable farms was $10.30 as compared with $10.94 for the least profitable group. The cost of power and machinery was $.75 per crop acre lower for the more successful farms, but the man labor cost was $.63 an acre higher. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.55 per acre for the more profitable farms as compared with a loss of $6.99 per acre for the less profitable group. For the first group this was a return of .90% on the capital invested in the business and for the second group a loss of 3.54%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock and to the smaller decrease in the grain inventory. The lower expenses per acre were due to savings made on the more profitable farms in the machinery and improvements accounts. The chief difference between the two groups of farms, however, was the decrease in inventory values of $518 per farm for the most profitable farms as compared with $2092 per farm for the least profitable farms.

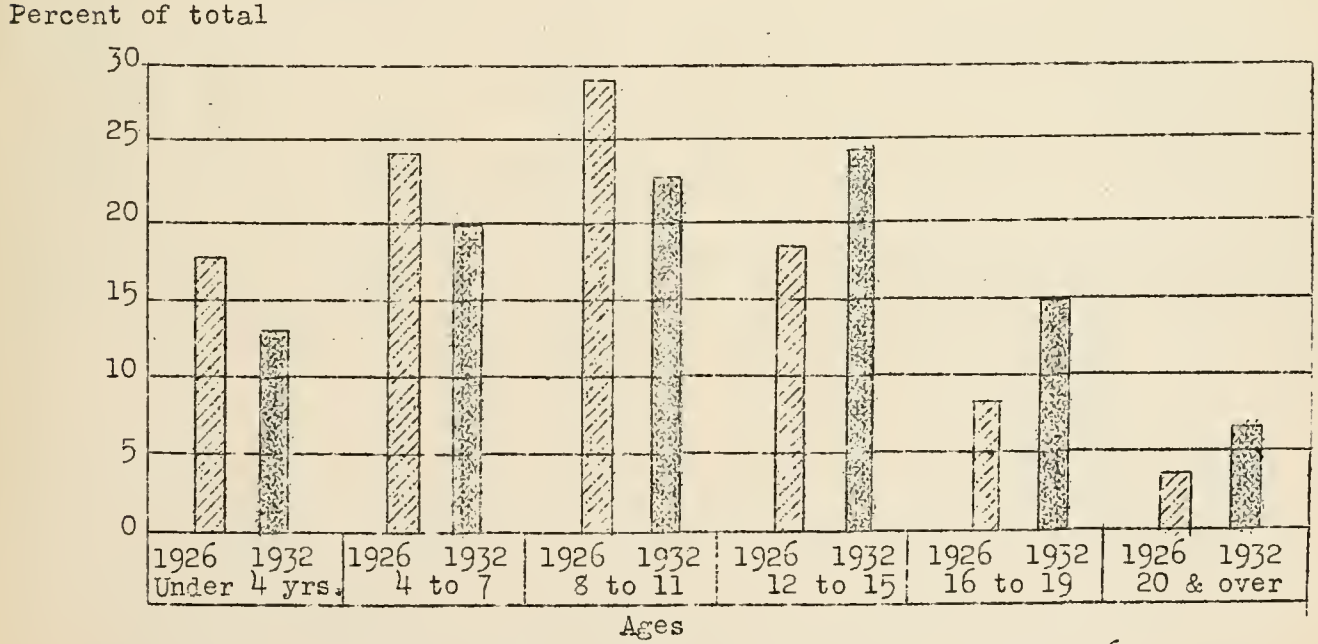
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Iroquois and Kankakee counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $13 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Iroquois and Kankakee Counties for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930	1931
Number of farms	28	34	41	38	41
Average size of farms, acres	233	259	271	243	242
Average rate earned, to pay for management, risk and capital	4.1%	6.0%	5.2%	0.2%	-1.2%
Average labor and management wage	$218	$1282	$826	$-1723	$-2172
Gross income per acre	21.83	25.17	23.80	12.27	7.93
Operating cost per acre	11.72	11.36	12.05	11.83	10.19
Average value of land per acre	195	185	179	147	134
Total investment per acre	244	231	226	208	184
Investment per farm in:					
Total livestock	2549	2526	2498	3274	2422
Cattle	767	1057	942	1560	974
Hogs	730	522	493	526	445
Poultry	182	191	175	179	160
Gross income per farm	5096	6519	6451	2986	1915
Income per farm from:					
Crops	2945	3929	3727	898	568
Miscellaneous income	47	72	83	53	36
Total livestock	2104	2518	2641	2035	1311
Cattle	421	401	506	301	12
Dairy sales	460	656	585	526	590
Hogs	855	1035	1061	849	434
Poultry	307	365	412	331	230
Average yield of corn in bu.	39	46	42	33	41
Average yield of oats in bu.	28	37	38	32	39

1/ Records from Ford County included for 1927-1928.

Investments, Receipts, Expenses, and Earnings on
41 Iroquois and Kankakee County Farms, 1931

Items	Your farm	Average of 41 farms	14 most profitable farms	14 least profitable farms
CAPITAL INVESTMENTS				
Land		32 376	31 809	32 938
Farm improvements		5 503	5 040	6 271
Livestock total		2 422	2 019	2 650
Horses		675	500	840
Cattle		974	854	904
Hogs		445	306	559
Sheep		168	187	185
Poultry		160	172	162
Machinery and equipment		1 633	1 881	1 719
Feed, grain and supplies		2 613	2 295	3 340
Total capital investment	$	$ 44 547	$43 044	$46 918
RECEIPTS AND NET INCREASES				
Livestock total		1 311	1 853	795
Horses		--	--	--
Cattle		12	41	32
Hogs		434	461	353
Sheep		45	49	32
Poultry		102	151	46
Egg sales		128	145	118
Dairy sales		590	1 006	214
Feed, grain and supplies		568	1 041	130
Labor off farm		31	42	15
Miscellaneous receipts		5	13	1
Total receipts & net increases	$	$ 1 915	$ 2 949	$ 941
EXPENSES AND NET DECREASES				
Farm improvements		249	223	308
Horses		42	31	95
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		396	435	430
Feed, grain and supplies		--	--	--
Livestock expense		35	39	27
Crop expense		178	184	193
Hired labor		270	339	246
Taxes		455	380	509
Miscellaneous expenses		24	26	26
Total expenses & net decreases	$	$ 1 649	$ 1 657	$ 1 834
RECEIPTS LESS EXPENSES	$	$ 266	$ 1 292	$ - 893
Total unpaid labor		811	906	769
Operator's labor		600	600	600
Family labor		211	306	169
Net income from investment and management		-545	386	-1 662
RATE EARNED ON INVESTMENT	%	-1.22 %	.90 %	-3.54%
Return to capital and operator's labor and management		55	986	-1 062
5% of capital invested		2 227	2 152	2 346
LABOR AND MANAGEMENT WAGE	$	$-2 172	$-1 166	$-3 408

Chart for Studying the Efficiency of Various Parts of Your Business
Iroquois and Kankakee Counties 1931

The numbers between the lines across the middle of the page are the approximate averages for the 41 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

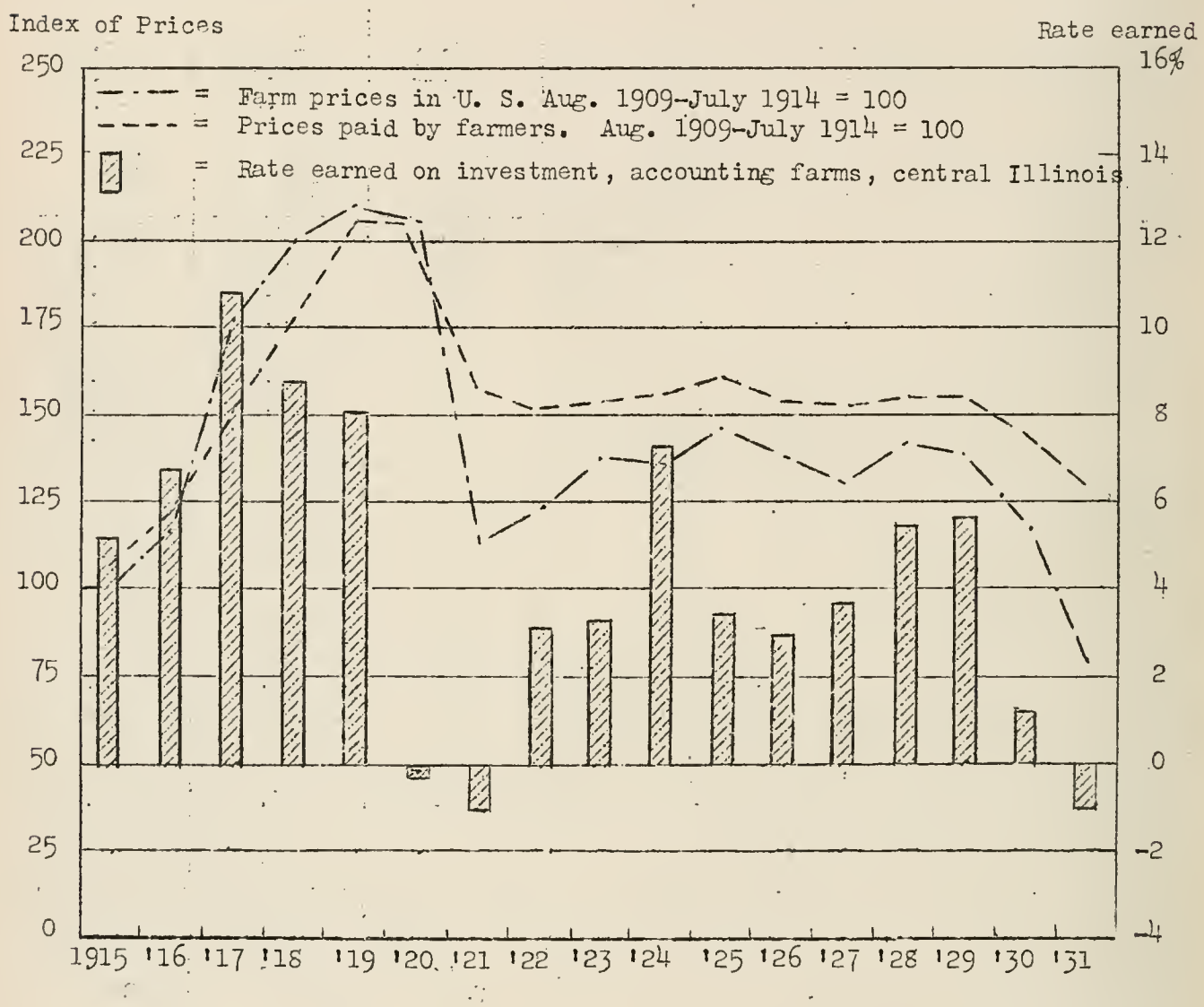
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
6.0	55	53	39	100	220	85	200	130	14	---	34	60	15	4 000	380
5.0	53	51	37	95	210	80	190	125	13	.35	37	70	14	3 700	360
4.0	51	49	35	90	200	75	180	120	12	.85	40	80	13	3 400	340
3.0	49	47	33	85	190	70	170	115	11	1.35	43	90	12	3 100	320
2.0	47	45	31	80	180	65	160	110	10	1.85	46	100	11	2 800	300
1.0	45	43	29	75	170	60	150	105	9	2.35	49	110	10	2 500	280
0.0	43	41	27	70	160	55	140	100	8	2.85	52	120	9	2 200	260
-1.0	41	39	25	65	150	50	130	95	7	3.35	55	130	8	1 900	240
-2.0	39	37	23	60	140	45	120	90	6	3.85	58	140	7	1 600	220
-3.0	37	35	21	55	130	40	110	85	5	4.35	61	150	6	1 300	200
-4.0	35	33	19	50	120	35	100	80	4	4.85	64	160	5	1 000	180
-5.0	33	31	17	45	110	30	90	75	3	5.35	67	170	4	700	160
-6.0	31	29	15	40	100	25	80	70	2	5.85	70	180	3	400	140
-7.0	29	27	13	35	90	20	70	65	1	6.35	73	190	2	100	120
-8.0	27	25	11	30	80	15	60	60	0	6.85	76	200	1	----	100

Factors Helping to Analyze the Farm Business on
41 Iroquois and Kankakee County Farms in 1931

Items	Your farm	Average of 41 farms	14 most profitable farms	14 least profitable farms
Size of farm--acres	_____	241.5	248.9	237.9
Percent of land area tillable		93.2	93.1	93.2
Gross receipts per acre	_____	7.93	11.85	3.95
Total expenses per acre		10.19	10.30	10.94
Net receipts per acre		-2.26	1.55	-6.99
Value of land per acre		134	128	138
Total investment per acre		184	173	197
Acres in Corn	_____	102.2	102.7	101.3
Oats	_____	56.2	53.5	62.8
Wheat	_____	10.6	22.5	4.8
Soybeans	_____	3.6	5.4	4.0
Crop yields--Corn, bu. per acre	_____	41.0	41.2	42.9
Oats, bu. per acre	_____	39.0	36.2	42.2
Wheat, bu. per acre	_____	24.6	23.7	26.2
Value of feed fed to productive livestock	_____	1 010	877	1 077
Returns per $100 of feed fed to productive livestock	_____	130	211	74
Returns per $100 invested in:				
Cattle	_____	66	123	31
Poultry	_____	151	173	111
Pigs weaned per litter	_____	6.5	6.7	6.6
Income per litter farrowed	_____	48	76	32
Dairy sales per dairy cow	_____	94	120	54
Investment in productive livestock per acre	_____	6.57	6.11	6.47
Receipts from productive livestock per acre	_____	5.43	7.44	3.34
Power and machinery cost per crop acre	_____	3.34	3.26	4.01
Machinery cost per crop acre	_____	1.98	2.06	2.20
Value of feed fed to horses	_____	230	221	258
Man labor cost per $100 gross income	_____	55	41	107
Man labor cost per acre	_____	4.35	4.83	4.20
Expenses per $100 gross income	_____	128	87	277
Farm improvements cost per acre	_____	1.02	.89	1.29
Farms with tractor	_____	61%	79%	64%
Excess of sales over cash expenses	_____	1 542	1 810	1 199
Decrease in inventory	_____	1 276	518	2 092

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-THREE FARMS IN EDGAR AND VERMILION COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, R. G. Trummel and H. C. M. Case*

The average of farm earnings, on account keeping farms in Edgar and Vermilion counties, was lower in 1931 than in 1930. In 1930 the average net income was $1092 per farm while in 1931 there was an average loss of $538 per farm. In 1930, however, $818 per farm was deducted for the labor of the operator and the family as compared with $666 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2492 in excess of cash expenses as compared with $1870 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*H. D. Van Matre and Otis Kercher, farm advisers in Edgar and Vermilion counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 33 farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 738		$2 041
Feed, grain and supplies	2 248		1 532
Machinery	2 042		1 848
Improvements	4 759		4 624
Total inventory	11 787		10 045
Decrease in inventory		$1 742	
Total cash sales for 1931		$3 988	
Total cash purchases for 1931		2 118	
Excess of cash sales over cash purchases		1 870	
Decrease in inventory		1 742	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		128	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Edgar and Vermilion counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 33 farms included in this study ranged in size from 60 to 455 acres per farm. Two were smaller than 100 acres and 8 were larger than 300 acres. The average size for all farms in the group was 239 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	260 - 299	4
100 - 139	3	300 - 339	3
140 - 179	4	340 - 379	3
180 - 219	3	380 - 419	0
220 - 259	9	420 - 459	2

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 33 farms included in the present study, the value of bare land per acre was $70 to $129 on 18 farms; $130 to $169 on 10 farms, and $170 to $209 on 5 farms. The average value was $133 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $183 per acre.

As previously stated, the average for all farms indicated a loss of $538 per farm after deducting $666 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2121 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $249; while the operators of 8 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms 1/	Net income per farm	Number of farms
$1 749 to $1 250	1	-750 to -1 249	6
1 249 to 750	1	-1 250 to -1 749	6
749 to 250	1	-1 750 to -2 249	1
249 to -249	4	-2 250 to -2 749	0
-250 to -749	11	-2 750 to -3 249	1

1/ One farm had an income of $3084.

A comparison of the 11 farms having the highest rate earned on investment with the 11 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 246 acres in size as compared with 210 for the less profitable group. The larger farms had a smaller percentage of the land area tillable and also a lower value per acre for the bare land. There was considerable difference in the crop yields. The most profitable farms grew 2.0 bushels more corn, 2.9 bushels less oats, 8.2 bushels more soybeans, and 5.5 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $688 per farm less than the beginning inventory, while on the less profitable farms it was $851 less than the beginning.

The investment per farm in livestock was $219 more on the most profitable farms than on the least profitable and the income was $1155 per farm higher while at the same time the increase from the feed and grain account was larger by $564. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $142 for the more profitable farms as compared with $112 for the less profitable farms. There were 6.0 pigs weaned per litter on the more profitable farms and 6.3 on the less profitable farms yet the returns per litter were $92 and $55 respectively. Dairy sales were $35 per cow higher and returns per $100 invested in poultry $24 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $11.91 as compared with $6.36 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $9.85 as compared with $13.11 for the least profitable group. The cost of power and machinery was $1.32 per crop acre lower for the more successful farms, and the man labor cost was 85 cents an acre lower. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $172 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.06 per acre for the more profitable farms as compared with a loss of $6.75 per acre for the less profitable group. For the first group this was a return of 1.14% on the capital invested in the business and for the second group a loss of 3.57%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

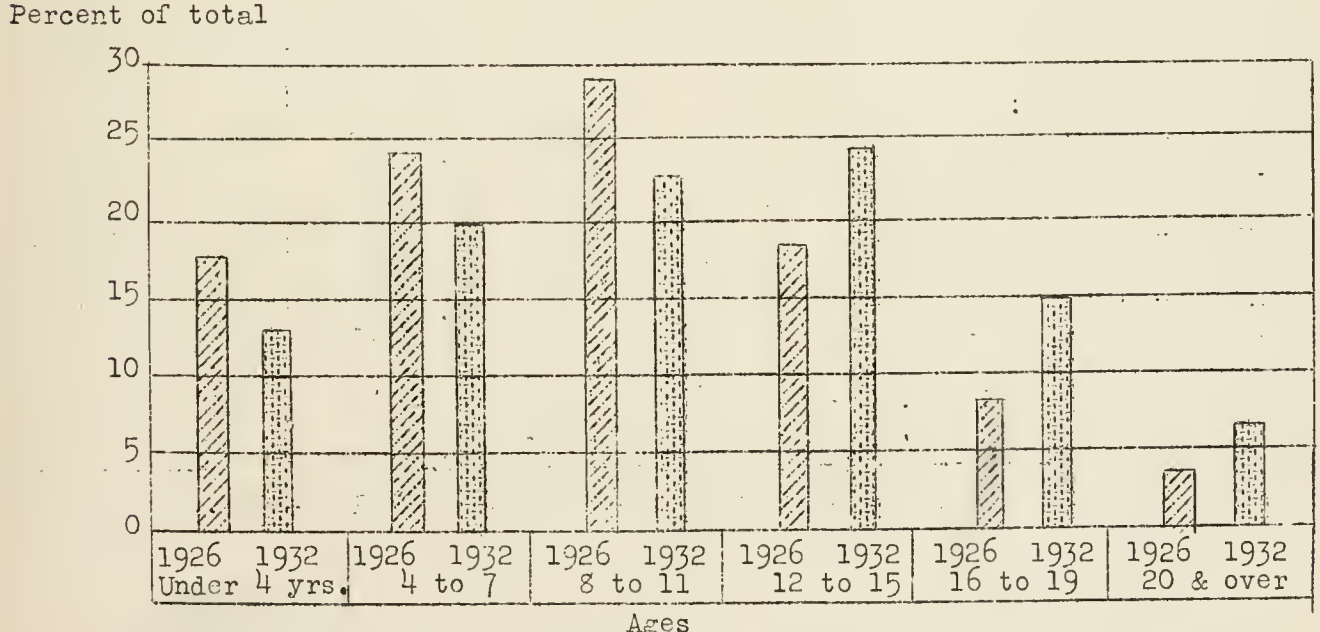
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Edgar and Vermilion counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $25 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in the latter year. The increase from both crops and livestock was lower in 1931 than in 1930. There was a decrease in the crops account in spite of higher crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Edgar and Vermilion Counties for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930[1]	1931
Number of farms	40	30	49	61	33
Average size of farms, acres	218	233	224	230	239
Average rate earned, to pay for management, risk and capital	3.3%	5.0%	4.5%	2.3%	-1.2%
Average labor and management wage	$-82	$680	$407	$-648	$-2121
Gross income per acre	18.61	22.33	22.29	17.13	7.92
Operating cost per acre	11.91	12.03	12.67	12.39	10.18
Average value of land per acre	154	160	164	158	133
Total investment per acre	200	205	216	210	183
Investment per farm in:					
Total livestock	2399	2645	2742	2868	2738
Cattle	738	955	1253	1424	1187
Hogs	892	760	762	702	929
Poultry	139	112	129	142	131
Gross income per farm	4054	5212	4993	3947	1894
Income per farm from:					
Crops	1402	2727	1830	1221	85
Miscellaneous income	47	68	44	58	35
Total livestock	2605	2417	3119	2668	1774
Cattle	610	602	654	464	284
Dairy sales	310	242	464	461	261
Hogs	1402	1217	1668	1526	1038
Poultry	207	265	297	197	184
Average yield of corn in bu.	40	48	43	37	47
Average yield of oats in bu.	27	47	36	40	50

1/ Some records from Coles and Douglas counties included for 1927-1930.

Investments, Receipts, Expenses, and Earnings on 33 Edgar and Vermilion County Farms, 1931

Items	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farms
CAPITAL INVESTMENTS				
Land		31 863	31 897	28 237
Farm improvements		4 759	4 923	4 650
Livestock total	_____	2 738	2 827	2 608
Horses		430	309	464
Cattle		1 187	1 299	1 013
Hogs		929	1 046	873
Sheep		61	42	122
Poultry		131	131	136
Machinery and equipment		2 042	2 391	2 022
Feed, grain and supplies		2 248	2 528	2 130
Total capital investment	$_____	$43 650	$44 566	$39 647
RECEIPTS AND NET INCREASES				
Livestock total	_____	1 774	2 466	1 311
Horses		---	---	---
Cattle		284	613	---
Hogs		1 038	1 113	951
Sheep		7	14	1
Poultry		62	104	28
Egg sales		122	128	160
Dairy sales		261	494	171
Feed, grain and supplies		85	392	---
Labor off farm		27	54	14
Miscellaneous receipts		8	13	10
Total receipts & net increases	$_____	$ 1 894	$ 2 925	$ 1 335
EXPENSES AND NET DECREASES				
Farm improvements		224	149	297
Horses		45	30	76
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		475	523	525
Feed, grain and supplies		---	---	172
Livestock expense		53	56	48
Crop expense		180	200	142
Hired labor		361	360	408
Taxes		400	372	408
Miscellaneous expenses		28	27	29
Total expenses & net decreases	$_____	$ 1 766	$ 1 717	$ 2 105
RECEIPTS LESS EXPENSES	$_____	$ 128	$ 1 208	$ -770
Total unpaid labor		666	702	646
Operator's labor		600	600	600
Family labor		66	102	46
Net income from investment and management		-538	506	-1 416
RATE EARNED ON INVESTMENT	_____%	-1.23%	1.14%	-3.57%
Return to capital and operator's labor and management		62	1 106	-816
5% of capital invested		2 183	2 228	1 982
LABOR AND MANAGEMENT WAGE	$_____	$-2 121	$-1 122	$-2 798

Chart for Studying the Efficiency of Various Parts of Your Business
Edgar and Varmilion Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 33 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

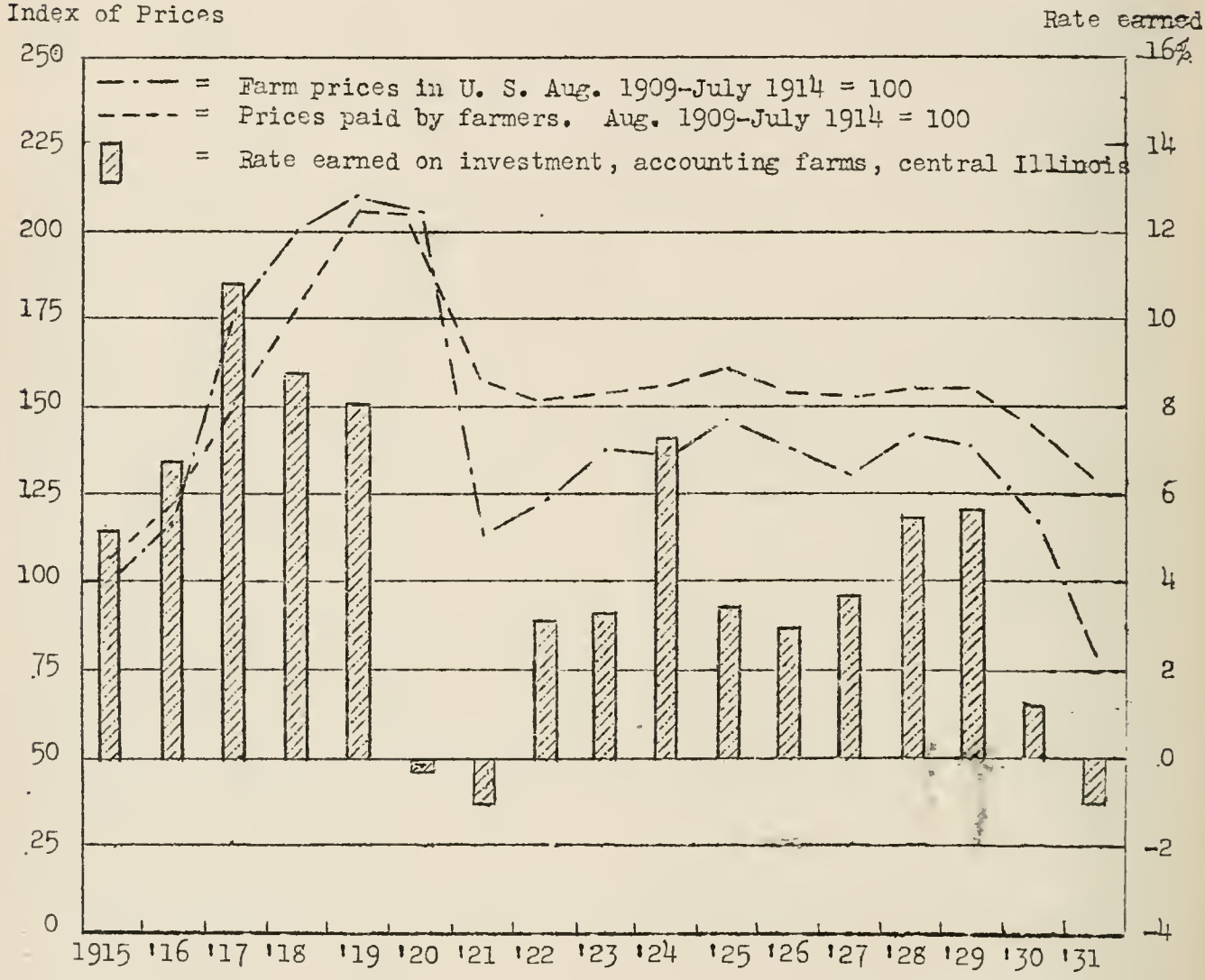
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--- income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.8	61	64	46	120	290	100	190	80	15	0	20	60	15	5 400	380
4.8	59	62	44	110	270	95	180	75	14	.50	25	70	14	4 900	360
3.8	57	60	42	100	250	90	170	70	13	1.00	30	80	13	4 400	340
2.8	55	58	40	90	230	85	160	65	12	1.50	35	90	12	3 900	320
1.8	53	56	38	80	210	80	150	60	11	2.00	40	100	11	3 400	300
0.8	51	54	36	70	190	75	140	55	10	2.50	45	110	10	2 900	280
-0.2	49	52	34	60	170	70	130	50	9	3.00	50	120	9	2 400	260
-1.2	47	50	32	50	150	65	120	45	8	3.50	55	130	8	1 900	240
-2.2	45	48	30	40	130	60	110	40	7	4.00	60	140	7	1 400	220
-3.2	43	46	28	30	110	55	100	35	6	4.50	65	150	6	900	200
-4.2	41	44	26	20	90	50	90	30	5	5.00	70	160	5	400	180
-5.2	39	42	24	10	70	45	80	25	4	5.50	75	170	4	---	160
-6.2	37	40	22	0	50	40	70	20	3	6.00	80	180	3	---	140
-7.2	35	38	20	--	30	35	60	15	2	6.50	85	190	2	---	120
-8.2	33	36	18	--	10	30	50	10	1	7.00	90	200	1	---	100

Factors Helping to Analyze the Farm Business on
33 Edgar and Vermilion County Farms in 1931

Items	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farms
Size of farm--acres	_____	239.0	245.5	209.8
Percent of land area tillable		90.5	86.8	91.9
Gross receipts per acre	_____	7.92	11.91	6.36
Total expenses per acre		10.18	9.85	13.11
Net receipts per acre		-2.26	2.06	-6.75
Value of land per acre		133	130	135
Total investment per acre		183	182	189
Acres in Corn	_____	89.5	89.8	81.4
Oats	_____	34.1	40.8	19.3
Wheat	_____	25.2	22.6	23.1
Soybeans	_____	17.0	9.8	19.6
Crop yields--Corn, bu. per acre	_____	46.9	49.2	47.2
Oats, bu. per acre	_____	49.6	49.6	52.5
Wheat, bu. per acre	_____	31.7	35.0	29.5
Soybeans, bu. per acre	_____	21.8	25.3	17.1
Value of feed fed to productive livestock	_____	1 485	1 741	1 169
Returns per $100 of feed fed to productive livestock	_____	119	142	112
Returns per $100 invested in:				
Cattle	_____	52	92	20
Poultry	_____	147	168	144
Pigs weaned per litter	_____	6.4	6.0	6.3
Income per litter farrowed	_____	66	92	55
Dairy sales per dairy cow	_____	46	63	28
Investment in productive livestock per acre	_____	8.31	9.07	8.58
Receipts from productive livestock per acre	_____	7.42	10.04	6.25
Power and machinery cost per crop acre	_____	3.51	3.42	4.74
Machinery cost per crop acre	_____	2.49	2.68	3.23
Value of feed fed to horses	_____	149	116	169
Man labor cost per $100 gross income	_____	53	34	78
Man labor cost per acre	_____	4.18	4.11	4.96
Expenses per $100 gross income	_____	128	83	206
Farm improvements cost per acre	_____	.94	.61	1.42
Farms with tractor	_____	85%	82%	91%
Excess of sales over cash expenses	_____	1 870	2 699	1 336
Decrease in inventory	_____	1 742	1 491	2 106

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-EIGHT FARMS IN COLES, DOUGLAS AND MOULTRIE COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. F. Shoot and H. C. M. Case*

The average of farm earnings, on account keeping farms in this area, was lower in 1931 than in 1930. In 1930 the average net income was $1092 per farm while in 1931 there was an average loss of $672 per farm. In 1930, however, $818 per farm was deducted for the labor of the operator and the family as compared with $732 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per farm in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2492 in excess of cash expenses as compared with $1193 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*Melvin Thomas, G. F. Hoover and J. H. Hughes, farm advisers in Coles, Douglas and Moultrie Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 38 farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 129		$1 868
Feed, grain and supplies	2 305		1 606
Machinery	1 868		1 780
Improvements	3 726		3 641
Total inventory	$10 028		$8 895
Decrease in inventory		-$1 133	
Total cash sales for 1931		-$3 325	
Total cash purchases for 1931		2 132	
Excess of cash sales over cash purchases		1 193	
Decrease in inventory		1 133	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		60	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Coles, Douglas and Moultrie counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 38 farms included in this study ranged in size from 104 to 468 acres per farm. Six were smaller than 140 acres and 6 were larger than 340 acres. The average size for all farms in the group was 247 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
100 - 139	6	300 - 339	5
140 - 179	3	340 - 379	3
180 - 219	7	380 - 419	1
220 - 259	7	420 - 459	0
260 - 299	4	460 - 499	2

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 38 farms included in the present study, the value of bare land per acre was $50 to $109 on 8 farms; $110 to $169 on 18 farms, and $170 to $209 on 12 farms. The average value was $140 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $180 per acre.

As previously stated, the average for all farms indicated a loss of $672 per farm after deducting $732 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2304 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249; while the operators of 9 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	1	- 750 to -1 249	6
749 to 250	2	-1 250 to -1 749	7
249 to -249	7	-1 750 to -2 249	0
-250 to -749	13	-2 250 to -2 749	1
		-2 750 to -3 249	1

A comparison of the 13 farms having the highest rate earned on investment with the 13 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 274 acres in size as compared with 223 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew .9 bushels more corn, .7 bushels less oats, 4.1 bushels more soybeans, and 1.3 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted in part for the fact that the sales of grain were $854 per farm higher than on the less profitable farms.

The investment per farm in livestock was $474 more on the most profitable farms than on the least profitable and the income was $212 per farm higher while at the same time the increase from the feed and grain account was larger by $1145. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $144 for the more profitable farms as compared with $102 for the less profitable farms. Dairy sales were $63 per cow higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.04 as compared with $6.73 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.88 as compared with $12.68 for the least profitable group. The cost of power and machinery was $1.02 per crop acre lower for the more successful farms, and the man labor cost was 50 cents an acre lower. The less profitable farms had a loss of $461 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of 16 cents per acre for the more profitable farms as compared with a loss of $5.95 per acre for the less profitable group. For the first group this was a return of .08% on the capital invested in the business and for the second group a loss of 3.35%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed and labor accounts.

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In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

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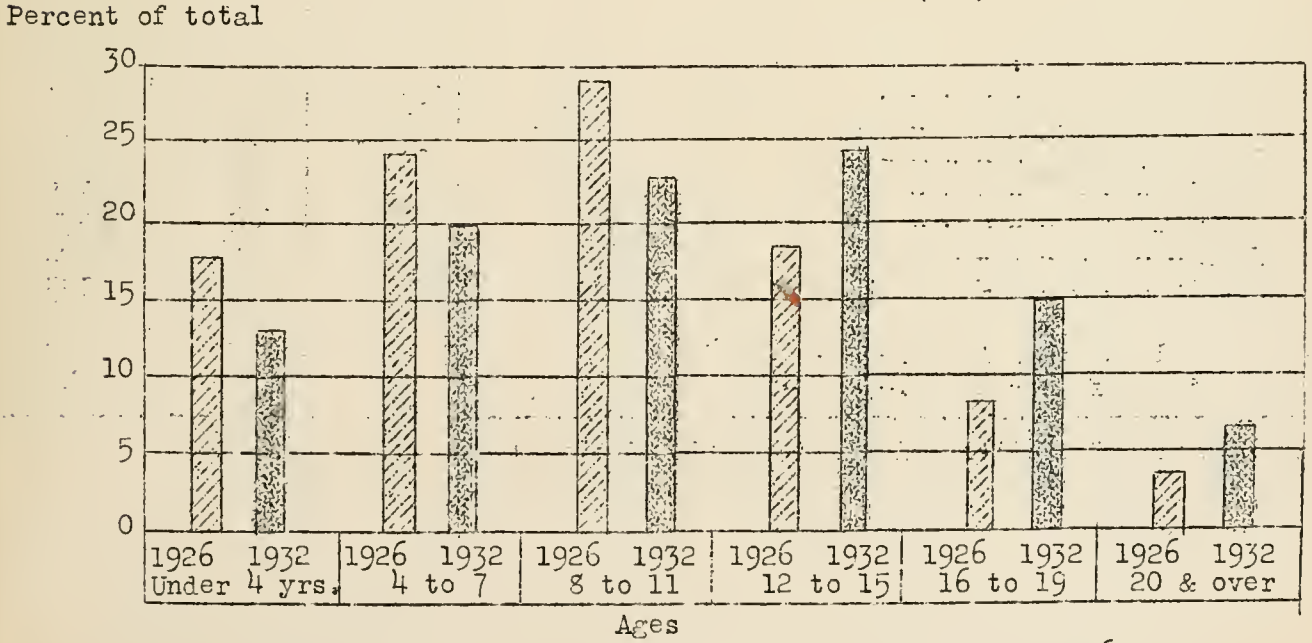
Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Coles, Douglas and Moultrie Counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931, although the average land value was $18 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The increase from both crops and livestock was lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Coles, Douglas, Moultrie Counties for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930[1]	1931
Number of farms	40	30	49	61	38
Average size of farms, acres	218	233	224	230	247
Average rate earned, to pay for management, risk and capital	3.3%	5.0%	4.5%	2.3%	-1.5%
Average labor and management wage	$-82	$680	$407	$-648	$-2304
Gross income per acre	18.61	22.33	22.29	17.13	6.80
Operating cost per acre	11.91	12.03	12.67	12.39	9.52
Average value of land per acre	154	160	164	158	140
Total investment per acre	200	205	216	210	180
Investment per farm in:					
Total livestock	2399	2645	2742	2868	2129
Cattle	738	955	1253	1424	1004
Hogs	892	760	762	702	536
Poultry	139	112	129	142	88
Gross income per farm	4054	5212	4993	3947	1680
Income per farm from:					
Crops	1402	2727	1830	1221	191
Miscellaneous income	47	68	44	58	73
Total livestock	2605	2417	3119	2668	1416
Cattle	610	602	654	464	106
Dairy sales	310	242	464	461	373
Hogs	1402	1217	1668	1526	800
Poultry	207	265	297	197	133
Average yield of corn in bu.	40	48	43	37	42
Average yield of oats in bu.	27	47	36	40	48

1/Records from Vermilion and Edgar counties included for 1927-1930.

Investments, Receipts, Expenses, and Earnings on
38 Coles, Douglas and Moultrie County Farms, 1931

Items	Your farm	Average of 38 farms	13 most profitable farms	13 least profitable farms
CAPITAL INVESTMENTS				
Land		34 531	41 449	30 079
Farm improvements		3 726	4 386	3 231
Livestock total		2 129	2 701	2 227
Horses		455	527	446
Cattle		1 004	1 426	1 010
Hogs		536	602	661
Sheep		46	27	38
Poultry		88	119	72
Machinery and equipment		1 868	2 562	1 786
Feed, grain and supplies		2 305	2 580	2 332
Total capital investment	$	$44 559	$53 678	$39 655
RECEIPTS AND NET INCREASES				
Livestock total		1 416	1 686	1 474
Horses		---	---	---
Cattle		106	130	125
Hogs		800	774	930
Sheep		4	---	12
Poultry		55	62	54
Egg sales		78	87	48
Dairy sales		373	633	305
Feed, grain and supplies		191	684	---
Labor off farm		63	101	28
Miscellaneous receipts		10	3	1
Total receipts & net increases	$	$ 1 680	$ 2 474	$ 1 503
EXPENSES AND NET DECREASES				
Farm improvements		198	195	154
Horses		50	49	65
Miscellaneous livestock decreases Sheep		---	7	---
Machinery and equipment		403	405	442
Feed, grain and supplies		---	---	461
Livestock expense		41	31	44
Crop expense		175	155	170
Hired labor		315	404	260
Taxes		411	434	438
Miscellaneous expenses		27	29	29
Total expenses & net decreases	$	$ 1 620	$ 1 709	$ 2 063
RECEIPTS LESS EXPENSES	$	$ 60	$ 765	$ -560
Total unpaid labor		732	720	768
Operator's labor		596	589	600
Family labor		136	131	168
Net income from investment and management		-672	45	-1 328
RATE EARNED ON INVESTMENT	%	-1.51%	.08%	-3.35%
Return to capital and operator's labor and management		-76	634	-728
5% of capital invested		2 228	2 684	1 983
LABOR AND MANAGEMENT WAGE	$	$-2 304	$-2 050	$-2 711

Chart for Studying the Efficiency of Various Parts of Your Business
Coles, Douglas and Moultrie Counties 1931

The numbers between the lines across the middle of the page are the approximate averages for the 38 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

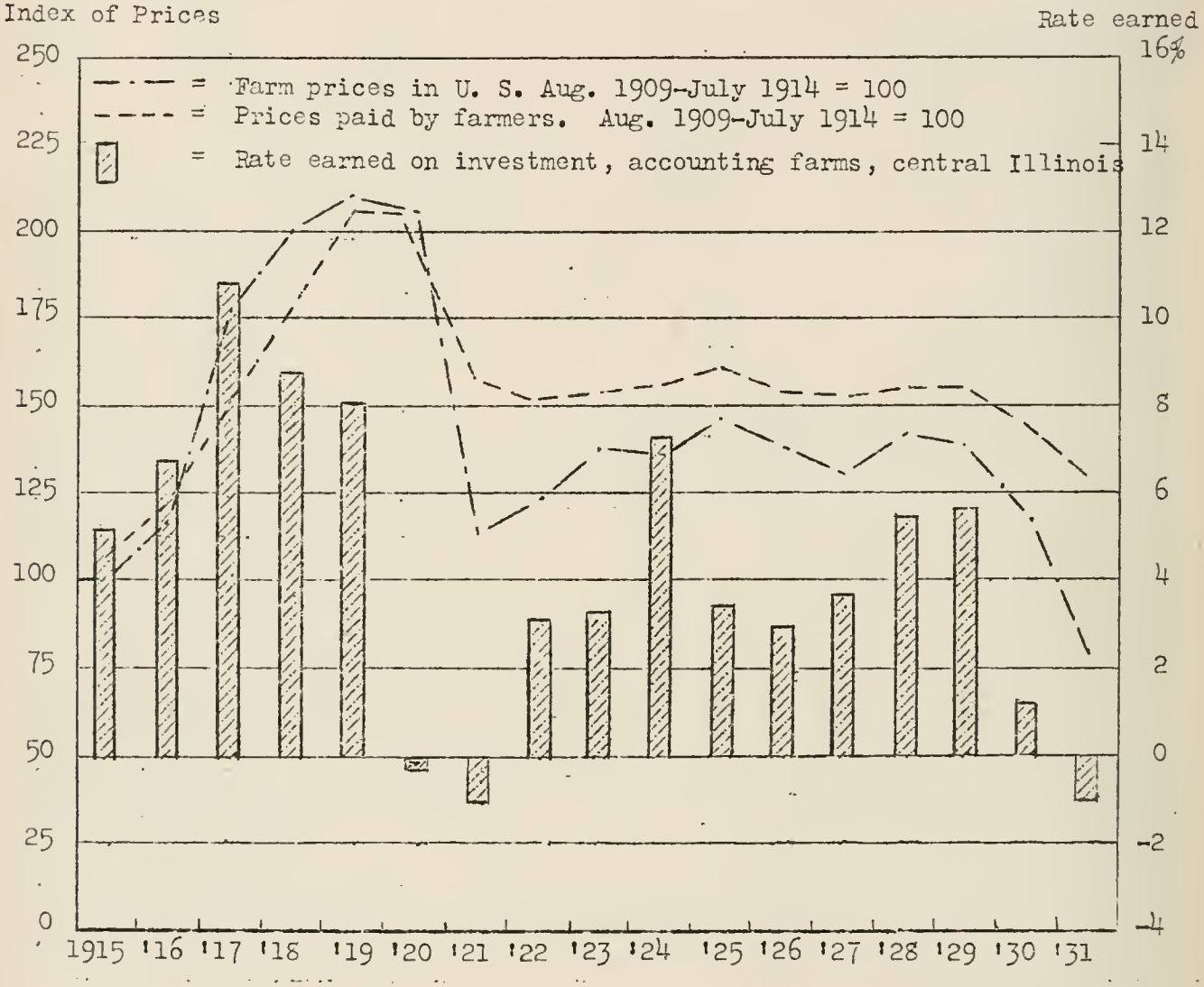
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.5	56	62	43	85	230	95	190	140	13	---	39	70	14	3 800	390
4.5	54	60	41	80	220	90	180	130	12	.16	42	80	13	3 500	370
3.5	52	58	39	75	210	85	170	120	11	.66	45	90	12	3 200	350
2.5	50	56	37	70	200	80	160	110	10	1.16	48	100	11	2 900	330
1.5	48	54	35	65	190	75	150	100	9	1.66	51	110	10	2 600	310
.5	46	52	33	60	180	70	140	90	8	2.16	54	120	9	2 300	290
-.5	44	50	31	55	170	65	130	80	7	2.66	57	130	8	2 000	270
-1.5	42	48	29	50	160	60	120	70	6	3.16	60	140	7	1 700	250
-2.5	40	46	27	45	150	55	110	60	5	3.66	63	150	6	1 400	230
-3.5	38	44	25	40	140	50	100	50	4	4.16	66	160	5	1 100	210
-4.5	36	42	23	35	130	45	90	40	3	4.66	69	170	4	800	190
-5.5	34	40	21	30	120	40	80	30	2	5.16	72	180	3	500	170
-6.5	32	38	19	25	110	35	70	20	1	5.66	75	190	2	200	150
-7.5	30	36	17	20	100	30	60	10	0	6.16	78	200	1	---	130
-8.5	28	34	15	15	90	25	50	0	---	6.66	81	210	0	---	110

Factors Helping to Analyze the Farm Business on
38 Coles, Douglas and Moultrie County Farms in 1931

Items	Your farm	Average of 38 farms	13 most profitable farms	13 least profitable farms
Size of farm--acres	_____	246.9	273.6	223.3
Percent of land area tillable		90.2	93.1	91.5
Gross receipts per acre	_____	6.80	9.04	6.73
Total expenses per acre		9.52	8.88	12.68
Net receipts per acre		-2.72	.16	-5.95
Value of land per acre		140	151	135
Total investment per acre		180	196	178
Acres in Corn	_____	102.8	111.0	96.8
Oats	_____	29.8	32.2	26.2
Wheat	_____	22.7	29.6	19.5
Soybeans	_____	22.0	30.6	17.9
Crop yields--Corn, bu. per acre	_____	42.4	42.9	42.0
Oats, bu. per acre	_____	47.5	49.4	50.1
Wheat, bu. per acre	_____	28.6	29.0	27.7
Soybeans, bu. per acre	_____	25.1	26.7	22.6
Value of feed fed to productive livestock	_____	1 165	1 164	1 449
Returns per $100 of feed fed to productive livestock	_____	122	144	102
Returns per $100 invested in:				
Cattle	_____	48	52	49
Poultry	_____	158	140	144
Pigs weaned per litter	_____	6.3	6.2	6.2
Income per litter farrowed	_____	58	53	57
Dairy sales per dairy cow	_____	70	109	46
Investment in productive livestock per acre	_____	6.34	7.70	6.66
Receipts from productive livestock per acre	_____	5.74	6.14	6.60
Power and machinery cost per crop acre	_____	3.16	2.72	3.74
Machinery cost per crop acre	_____	2.04	1.79	2.42
Value of feed fed to horses	_____	172	160	176
Man labor cost per $100 gross income	_____	61	44	67
Man labor cost per acre	_____	4.14	3.98	4.48
Expenses per $100 gross income	_____	140	98	188
Farm improvements cost per acre	_____	.80	.71	.69
Farms with tractor	_____	82%	92%	84%
Excess of sales over cash expenses	_____	1 193	1 925	1 038
Decrease in inventory	_____	1 133	1 160	1 598

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON TWENTY-NINE FARMS IN CHRISTIAN COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. F. Shoot and H. C. M. Case*

The average of farm earnings, on account keeping farms in Christian County, was lower in 1931 than in 1930. In 1930 the average net income was $906 per farm while in 1931 there was an average loss of $1282 per farm. In 1930, however, $907 per farm was deducted for the labor of the operator and the family as compared with $764 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2252 in excess of cash expenses as compared with $947 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year in reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*T. H. Brock, farm adviser in Christian County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Christian County farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$1 932		$1 463
Feed, grain and supplies	1 805		1 003
Machinery	2 193		2 018
Improvements	3 377		3 358
Total inventory	$9 307		$7 842
Decrease in inventory		$1 465	
Total cash sales for 1931		$3 137	
Total cash purchases for 1931		2 190	
Excess of cash sales over cash purchases		947	
Decrease in inventory		1 465	
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)		518	

The heavy inventory loss in the livestock and grain accounts was due to a decrease in the value rather than in the volume of these products on hand at the end of the year.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Christian County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in

this accounting service.

The 29 farms included in this study ranged in size from 93 to 478 acres per farm. Three were smaller than 140 acres and 6 were larger than 340 acres. The average size for all farms in the group was 260 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	300 - 339	5
100 - 139	2	340 - 379	2
140 - 179	5	380 - 419	1
180 - 219	2	420 - 459	2
220 - 259	6	460 - 499	1
260 - 299	2		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 29 farms included in the present study, the value of bare land per acre was $30 to $89 per acre on 7 farms; $90 to $149 on 12 farms, and $150 to $209 on 10 farms. The average value was $127 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $163 per acre.

As previously stated, the average for all farms indicated a loss of $1282 per farm after deducting $764 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2807 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Two of the farms netted their operators incomes of more than $249; while the operators of 14 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	1	-750 to -1 249	8
1 249 to 750	0	-1 250 to -1 749	6
749 to 250	1	-1 750 to -2 249	5
249 to -249	2	-2 250 to -2 749	1
-250 to -749	3	-3 750 to -4 249	2

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 302 acres in size as compared with 232 for the less profitable group. The larger farms had a much higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 11.3 bushels more corn, 8.5 bushels more oats, 7.4 bushels more soybeans, but 4.2 bushels less wheat per acre than did the least profitable farms.

The investment per farm in livestock was $149 more on the most profitable farms than on the least profitable and the income was $462 per farm higher while at the same time the increase from the feed and grain account was larger by $962. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $112 for the more profitable farms as compared with $84 for the less profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $6.72 as compared with $3.90 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $7.79 as compared with $11.99 for the least profitable group. The cost of power and machinery was $1.57 per crop acre lower for the more successful farms, and the man labor cost was 47 cents an acre lower. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $346 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net loss of $1.07 per acre for the more profitable farms as compared with $8.09 per acre for the less profitable group. For the first group this was a loss of .61% on the capital invested in the business and for the second group a loss of 6.68%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor, feed and improvements accounts.

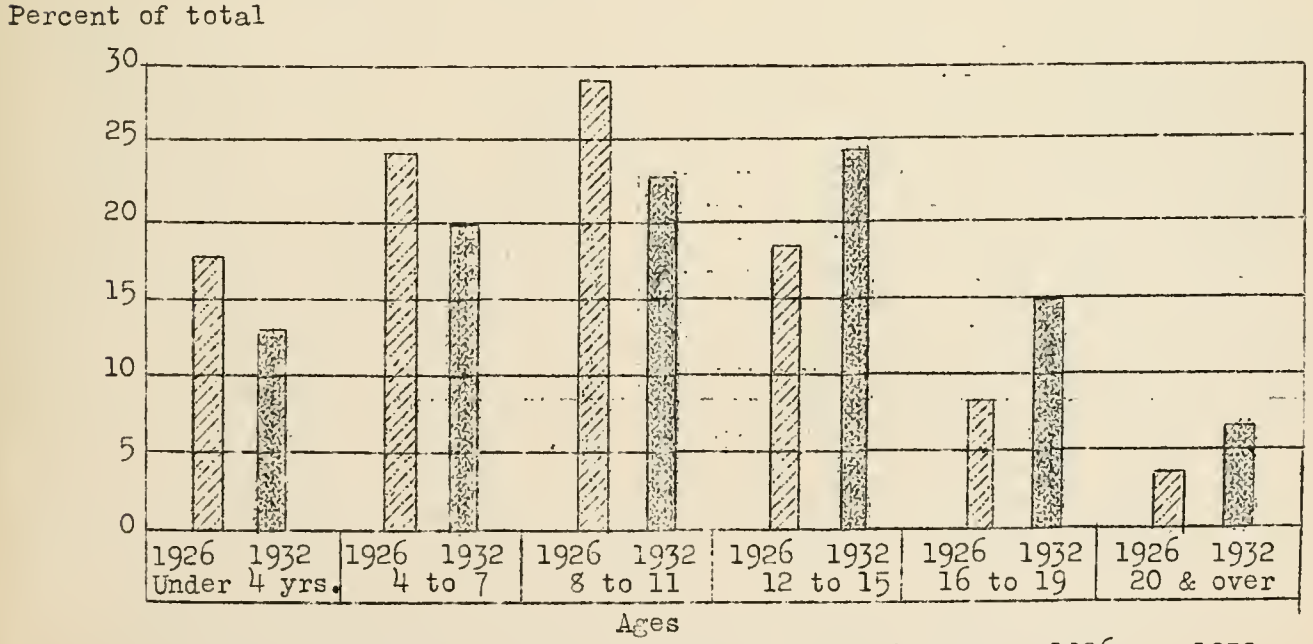
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Two-Year Period

Some comparative investment and earning data on accounting farms in Christian County for 1930 and 1931 are shown in the following table. The rate earned dropped sharply in 1931 although the average land value was $6 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The income from both crops and livestock was lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Christian County for 1930 and 1931

Items	1930[1]	1931
Number of farms	34	29
Average size of farms, acres	252	260
Average rate earned, to pay for management, risk and capital	2.1%	-3.0%
Average labor and management wage	$-580	$-2 807
Gross income per acre	15.24	4.97
Operating cost per acre	11.65	9.90
Average value of land per acre	133	127
Total investment per acre	174	163
Investment per farm in:		
Total livestock	2 486	1 932
Cattle	1 143	781
Hogs	623	565
Poultry	128	85
Gross income per farm	3 844	1 291
Income per farm from:		
Crops	1 615	---
Miscellaneous income	83	94
Total livestock	2 146	1 197
Cattle	162	89
Dairy sales	358	243
Hogs	1 476	761
Poultry	147	98
Average yield of corn in bu.	32	28
Average yield of wheat in bu.	22	30

1/ Records from Moultrie County included in 1930.

Investments, Receipts, Expenses, and Earnings on
29 Christian County Farms, 1931

Items	Your farm	Average of 29 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		33 020	43 331	20 219
Farm improvements		3 377	3 431	2 661
Livestock total	_____	1 932	1 689	1 540
Horses		443	525	283
Cattle		781	471	641
Hogs		565	610	418
Sheep		58	22	111
Poultry		85	61	87
Machinery and equipment		2 193	2 419	2 178
Feed, grain and supplies		1 805	2 058	1 457
Total capital investment	$_____	$42 327	$52 928	$28 055
RECEIPTS AND NET INCREASES				
Livestock total	_____	1 197	1 315	853
Horses		---	---	---
Cattle		89	105	---
Hogs		761	935	513
Sheep		6	---	---
Poultry		42	31	38
Egg sales		56	26	74
Dairy sales		243	218	228
Feed, grain and supplies		---	616	---
Labor off farm		72	46	49
Miscellaneous receipts		22	51	3
Total receipts & net increases	$_____	$ 1 291	$ 2 028	$ 905
EXPENSES AND NET DECREASES				
Farm improvements		175	153	187
Horses		41	43	31
Miscellaneous livestock decreases Sheep 5, Cattle 46		---	---	51
Machinery and equipment		507	379	616
Feed, grain and supplies		97	---	346
Livestock expense		37	36	28
Crop expense		193	184	136
Hired labor		283	362	183
Taxes		448	482	432
Miscellaneous expenses		28	28	28
Total expenses & net decreases	$_____	$ 1 809	$ 1 667	$ 2 038
RECEIPTS LESS EXPENSES	$_____	$ -518	$ 361	$-1 133
Total unpaid labor		764	683	742
Operator's labor		591	590	585
Family labor		173	93	157
Net income from investment and management		-1 282	-322	-1 875
RATE EARNED ON INVESTMENT	_____%	-3.03%	-.61%	-6.68%
Return to capital and operator's labor and management		-691	268	-1 290
5% of capital invested		2 116	2 647	1 403
LABOR AND MANAGEMENT WAGE	$_____	$-2 807	$-2 379	$-2 693

Chart for Studying the Efficiency of Various Parts of Your Business
Christian County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 29 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

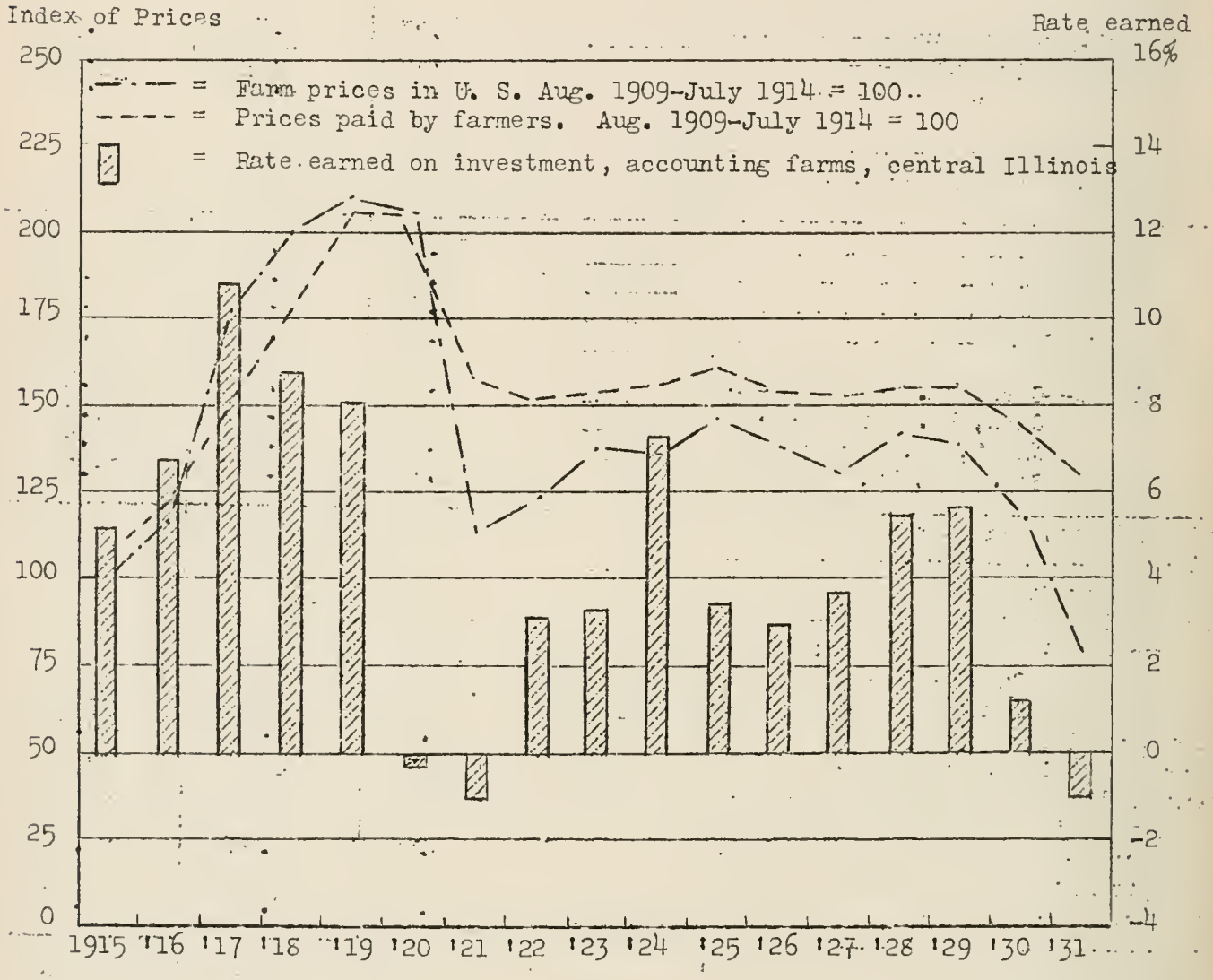
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs—income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
4.0	42	55	44	120	260	80	175	120	12	--	45	130	12	2 700	400
3.0	40	53	42	110	240	75	165	110	11	.25	50	140	11	2 500	380
2.0	38	51	40	100	220	70	155	100	10	.75	55	150	10	2 300	360
1.0	36	49	38	90	200	65	145	90	9	1.25	60	160	9	2 100	340
.0	34	47	36	80	180	60	135	80	8	1.75	65	170	8	1 900	320
-1.0	32	45	34	70	160	55	125	70	7	2.25	70	180	7	1 700	300
-2.0	30	43	32	60	140	50	115	60	6	2.75	75	190	6	1 500	280
-3.0	28	41	30	50	120	45	105	50	5	3.25	80	200	5	1 300	260
-4.0	26	39	28	40	100	40	95	40	4	3.75	85	210	4	1 100	240
-5.0	24	37	26	30	80	35	85	30	3	4.25	90	220	3	900	220
-6.0	22	35	24	20	60	30	75	20	2	4.75	95	230	2	700	200
-7.0	20	33	22	10	40	25	65	10	1	5.25	100	240	1	500	180
-8.0	18	31	20	0	20	20	55	0	0	5.75	105	250	0	300	160
-9.0	16	29	18	---	0	15	45	---	---	6.25	110	260	---	100	140
-10.0	14	27	16	---	---	10	35	---	---	6.75	115	270	---	----	120

Factors Helping to Analyze the Farm Business on
29 Christian County Farms in 1931

Items	Your farm	Average of 29 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres		260	301.6	231.9
Percent of land area tillable		92.4	91.8	95.6
Gross receipts per acre		4.97	6.72	3.90
Total expenses per acre		9.90	7.79	11.99
Net receipts per acre		-4.93	-1.07	-8.09
Value of land per acre		127	144	87
Total investment per acre		163	172	121
Acres in Corn		88.7	108.8	80.4
Oats		19.7	13.0	21.2
Wheat		23.7	32.1	8.2
Soybeans		62.8	82.5	62.2
Crop yields--Corn, bu. per acre		27.5	32.5	21.2
Oats, bu. per acre		40.9	46.1	37.6
Wheat, bu. per acre		30.1	28.0	32.2
Soybeans, bu. per acre		17.9	20.9	13.5
Value of feed fed to productive livestock		1 152	1 173	950
Returns per $100 of feed fed to productive livestock		104	112	84
Returns per $100 invested in:				
Cattle		48	64	33
Poultry		122	93	144
Pigs weaned per litter		6.1	6.5	6.8
Income per litter farrowed		46	43	63
Dairy sales per dairy cow		52	56	52
Investment in productive livestock per acre		4.92	3.69	4.46
Receipts from productive livestock per acre		4.60	4.36	3.46
Power and machinery cost per crop acre		3.27	2.31	3.88
Machinery cost per crop acre		2.35	1.51	3.15
Value of feed fed to horses		158	157	112
Man labor cost per $100 gross income		79	49	97
Man labor cost per acre		3.91	3.31	3.78
Expenses per $100 gross income		199	116	307
Farm improvements cost per acre		.67	.51	.81
Farms with tractor		90%	90%	90%
Excess of sales over cash expenses		947	1 196	392
Decrease in inventory		1 465	835	1 525

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN CLARK AND CRAWFORD COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. F. Shoot and H. C. M. Case*

The average of farm earnings, on account keeping farms in Clark and Crawford Counties, was lower in 1931 than in 1930. In 1930 the average net income was $7 per farm while in 1931 there was an average loss of $286 per farm. In 1930, however, $739 per farm was deducted for the labor of the operator and the family as compared with $639 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $600 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $1282 in excess of cash expenses as compared with $840 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: The value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis.

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*R. E. Apple and H. Allison, farm advisers in Clark and Crawford Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 30 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$1 948	$1 677	
Feed, grain and supplies	1 104	1 030	
Machinery	1 166	1 121	
Improvements	3 094	2 997	
Total inventory	7 312	6 825	
Decrease in inventory			$ 487
Total cash sales for 1931			$2 395
Total cash purchases for 1931			1 555
Excess of cash sales over cash purchases			840
Decrease in inventory			487
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			353

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supplies were due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) Corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Clark and Crawford Counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 80 to 470 acres per farm. Only 2 were smaller than 100 acres and only 4 were larger than 300 acres. The average size for all farms in the group was 203 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	260 - 299	1
100 - 139	2	300 - 339	2
140 - 179	11	340 - 379	0
180 - 219	8	380 - 419	1
220 - 259	2	420 - 459	0
		460 - 599	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $10 to $49 per acre on 11 farms; $50 to $89 on 15 farms, and $90 to $129 on 4 farms. The average value was $56 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $92 per acre.

As previously stated, the average for all farms indicated a loss of $286 per farm after deducting $639 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $767 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Two of the farms netted their operators incomes of more than $374; while the operators of two farms sustained losses of more than $1124. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1374 to $1125	1	-125 to -374	7
1124 to 875	0	-375 to -624	2
874 to 625	0	-625 to -874	3
624 to 375	1	-875 to -1124	3
374 to 125	5	-1125 to -1374	1
124 to -124	6	-1375 to -1624	0
		-1625 to -1874	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 227 acres in size as compared with 176 for the less profitable group. The larger farms had a higher percentage of the land area tillable but a lower value per acre for the bare land and for total investment. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The least profitable farms grew 3.8 bushels more corn, 6.1 bushels more oats, and 5.2 bushels more wheat per acre than did the most profitable farms.

This situation is not at all typical as in similar studies the more profitable farms usually have higher crop yields. In spite of the lower crop yields, the more profitable farms had an increase of $63 per farm in the feed and grain account as compared with a loss of $749 per farm for the less profitable group. The cash sales of grain averaged $368 per farm higher and the cash purchases $194 per farm lower on the more profitable farms. On the more profitable farms the inventory loss in the grain account was $30 per farm as compared with a loss of $280 on the less profitable farms.

The investment per farm in livestock was about the same for both groups, but the investment per acre was $1.75 higher for the less profitable group and $282 more feed per farm was fed to productive livestock. The difference in livestock efficiency is illustrated by the fact that the returns per $100 of feed fed were $185 for the more profitable farms as compared with $127 for the less profitable farms. There were 7.2 pigs weaned per litter on the more profitable farms but only 6.7 on the less profitable farms. The returns per $100 invested in poultry were $65 higher on the more profitable farms. With the higher crop yields and more feed fed to livestock, the gross receipts were 69 cents per acre higher on the less profitable farms in spite of the lower return for each $100 of feed fed.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $7.07 as compared with $14.00 for the least profitable group. The cost of power and machinery was $1.72 per crop acre lower for the more successful farms, and the man labor cost was $1.20 an acre lower. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $749 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.20 per acre for the more profitable farms as compared with a loss of $5.04 per acre for the less profitable group. For the first group this was a return of 1.35% on the capital invested in the business and for the second group a loss of 5.08%. The higher income per acre on the less profitable farms was due largely to the better crop yields and to the amount of livestock. The lower expenses per acre for the more profitable farms were due to savings made in the machinery, labor, feed and improvements accounts.

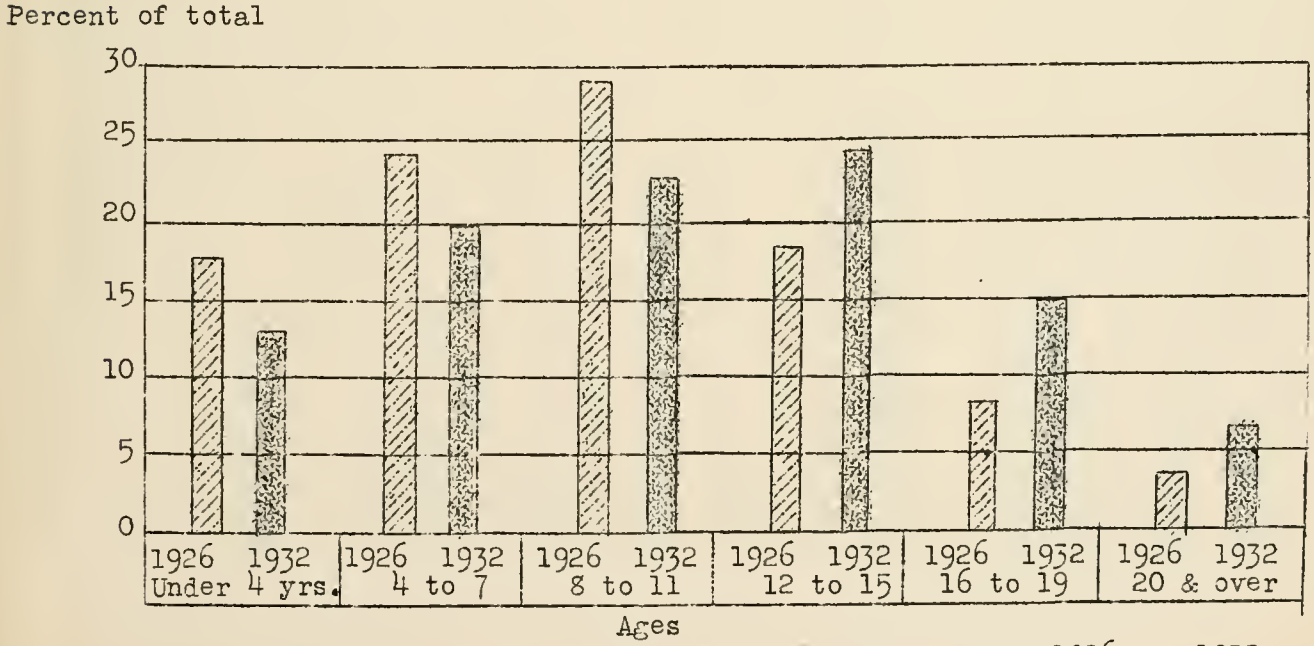
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Clark and Crawford Counties for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $24 per acre higher in 1930 than in 1931 due to the difference in the areas included in the comparison. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The decrease from crops and the increase from livestock were both less in 1931 than in 1930. The smaller crop decrease was due to superior crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Clark and Crawford Counties for 1928-1931

Items	1928[1]	1929[1]	1930[2]	1931
Number of farms	47	43	32	30
Average size of farms, acres	206	228	218	203
Average rate earned, to pay for management, risk and capital	3.0%	4.8%	.03%	-1.5%
Average labor and management wage	$ 78	$ 595	$-724	$-767
Gross income per acre	14.54	19.34	13.30	7.40
Operating cost per acre	10.84	11.80	13.27	8.81
Average value of land per acre	86	114	80	56
Total investment per acre	125	156	120	92
Investment per farm in:				
Total livestock	2117	2470	2251	1948
Cattle	857	1160	1014	924
Hogs	623	557	609	419
Poultry	167	158	132	160
Gross income per farm	3001	4409	2901	1501
Income per farm from:				
Crops	307	1350	---	---
Miscellaneous income	72	87	110	57
Total livestock	2622	2972	2791	1444
Cattle	1132	579	256	183
Dairy sales	390	329	666	254
Hogs	1132	1597	1578	590
Poultry	367	396	280	375
Average yield of corn in bu.	32	40	19	40
Average yield of wheat in bu.	6	19	14	27

[1] Records from Christian and Shelby Counties included for 1928 and 1929. A large proportion of Christian County records in 1929 had the effect of raising the average value of land for that year.

[2] Records from Wabash and Lawrence Counties included for 1930.

Investments, Receipts, Expenses, and Earnings on 30 Clark and Crawford County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		11 376	11 918	10 585
Farm improvements		3 094	3 706	2 713
Livestock total	_____	1 948	2 048	2 004
Horses		350	449	307
Cattle		924	940	928
Hogs		419	399	526
Sheep		95	55	107
Poultry		160	205	136
Machinery and equipment		1 166	1 397	931
Feed, grain and supplies		1 104	1 162	1 234
Total capital investment	$_____	$18 688	$20 231	$17 467
RECEIPTS AND NET INCREASES				
Livestock total	_____	1 444	1 738	1 552
Horses		---	---	1
Cattle		183	178	244
Hogs		590	704	656
Sheep		42	21	47
Poultry		116	202	88
Egg sales		259	433	213
Dairy sales		254	200	303
Feed, grain and supplies		---	63	---
Labor off farm		46	47	21
Miscellaneous receipts		11	29	4
Total receipts & net increases	$_____	$ 1 501	$ 1 877	$ 1 577
EXPENSES AND NET DECREASES				
Farm improvements		195	162	252
Horses		17	48	---
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		148	104	209
Feed, grain and supplies		195	---	749
Livestock expense		27	34	30
Crop expense		127	144	104
Hired labor		216	230	243
Taxes		200	186	205
Miscellaneous expenses		23	25	21
Total expenses & net decreases	$_____	$ 1 148	$ 933	$ 1 813
RECEIPTS LESS EXPENSES	$_____	$ 353	$ 944	$ -236
Total unpaid labor		639	671	652
Operator's labor		453	480	472
Family labor		186	191	180
Net income from investment and management		-286	273	-888
RATE EARNED ON INVESTMENT	_____%	-1.53%	1.35%	-5.08%
Return to capital and operator's labor and management		167	753	-416
5% of capital invested		934	1 012	873
LABOR AND MANAGEMENT WAGE	$_____	$ -767	$ -259	$-1 289

Chart for Studying the Efficiency of Various Parts of Your Business

Clark and Crawford Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

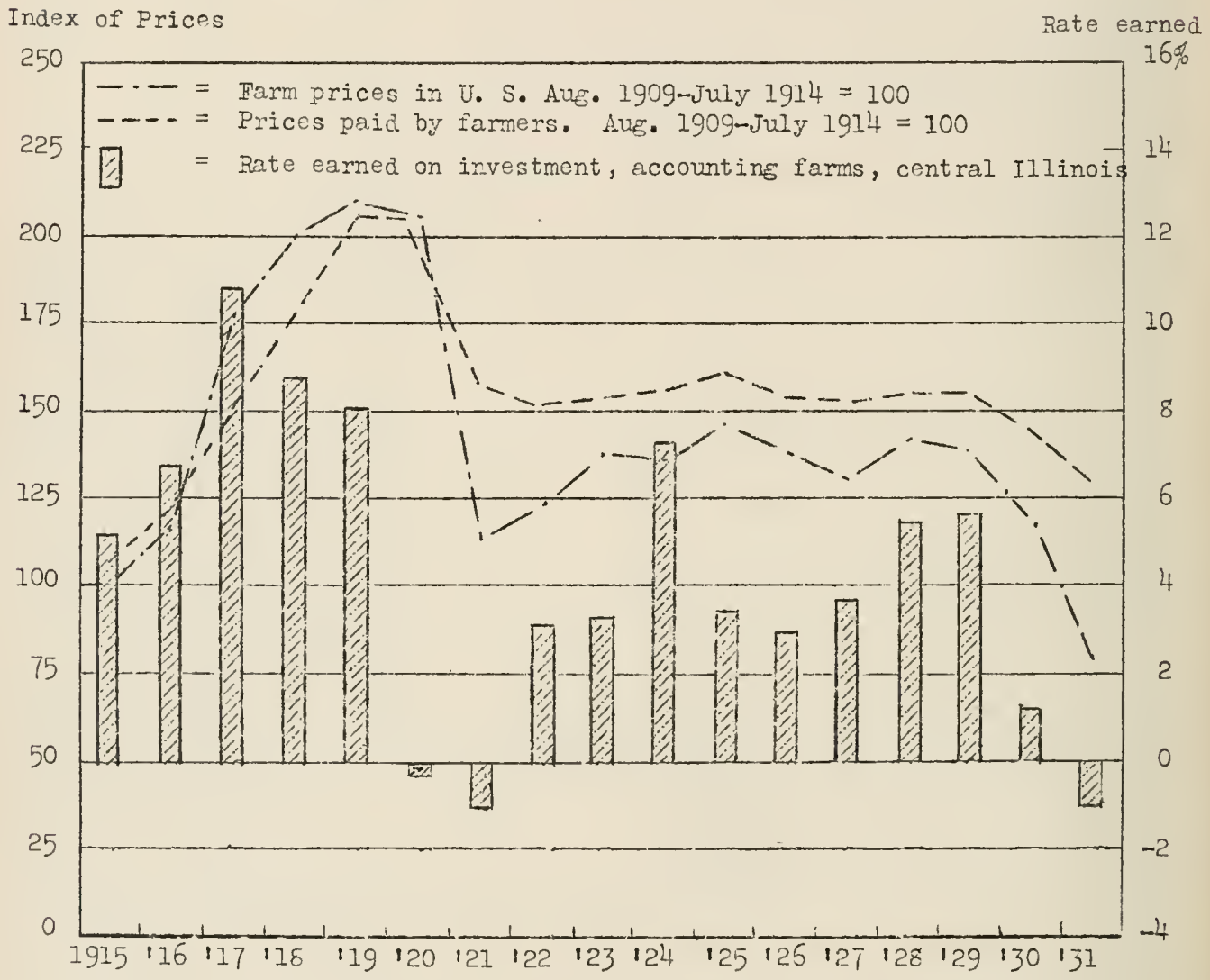
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
5.5	54	49	41	119	375	97	211	117	14	--	33	85	21	3 600	340
4.5	52	47	39	109	355	92	201	107	13	--	36	90	19	3 300	320
3.5	50	45	37	99	335	87	191	97	12	--	39	95	17	3 000	300
2.5	48	43	35	89	315	82	181	87	11	.36	42	100	15	2 700	280
1.5	46	41	33	79	295	77	171	77	10	.86	45	105	13	2 400	260
.5	44	39	31	69	275	72	161	67	9	1.36	48	110	11	2 100	240
-.5	42	37	29	59	255	67	151	57	8	1.86	51	115	9	1 800	220
-1.5	40	35	27	49	235	62	141	47	7	2.36	54	120	7	1 500	200
-2.5	38	33	25	39	215	57	131	37	6	2.86	57	125	5	1 200	180
-3.5	36	31	23	29	195	52	121	27	5	3.36	60	130	3	900	160
-4.5	34	29	21	19	175	47	111	17	4	3.86	63	135	1	600	140
-5.5	32	27	19	9	155	42	101	7	3	4.36	66	140	--	300	120
-6.5	30	25	17	--	135	37	91	--	2	4.86	69	145	--	0	100
-7.5	28	23	15	--	115	32	81	--	1	5.36	72	150	--	---	80
-8.5	26	21	13	--	95	27	71	--	0	5.86	75	155	--	---	60

Factors Helping to Analyze the Farm Business on 30 Clark and Crawford County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	202.8	226.9	176.3
Percent of land area tillable		84.2	89.2	74.9
Gross receipts per acre	_____	7.40	8.27	8.96
Total expenses per acre		8.81	7.07	14.00
Net receipts per acre		-1.41	1.20	-5.04
Value of land per acre		56	52	60
Total investment per acre		92	89	99
Acres in Corn	_____	48.6	59.5	41.8
Oats	_____	18.5	24.2	14.9
Wheat	_____	21.1	33.3	13.1
Crop yields--Corn, bu. per acre	_____	39.6	37.3	41.1
Oats, bu. per acre	_____	35.0	33.4	39.5
Wheat, bu. per acre	_____	26.6	24.5	29.7
Value of feed fed to productive livestock	_____	1022	941	1223
Returns per $100 of feed fed to productive livestock	_____	141	185	127
Returns per $100 invested in:				
Cattle	_____	49	41	64
Poultry	_____	235	300	235
Pigs weaned per litter	_____	7.2	7.2	6.7
Income per litter farrowed	_____	62	81	59
Dairy sales per dairy cow	_____	47	35	58
Investment in productive livestock per acre	_____	7.25	6.67	8.42
Receipts from productive livestock per acre	_____	7.12	7.66	8.82
Power and machinery cost per crop acre	_____	2.36	1.91	3.63
Machinery cost per crop acre	_____	1.12	.65	2.10
Value of feed fed to horses	_____	146	152	154
Man labor cost per $100 gross income	_____	54	45	55
Man labor cost per acre	_____	3.99	3.76	4.96
Expenses per $100 gross income	_____	119	85	156
Farm improvements cost per acre	_____	.96	.71	1.43
Farms with tractor	_____	57%	50%	40%
Excess of sales over cash expenses	_____	840	1 211	713
Decrease in inventory	_____	487	267	949

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

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ANNUAL FARM BUSINESS REPORT ON THIRTY-FOUR FARMS IN SANGAMON COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. F. Shoot and H. C. M. Case*

The average of farm earnings, on account keeping farms in Sangamon County, was lower in 1931 than in 1930. In 1930 the average net income was $1,040 per farm while in 1931 there was an average loss of $841 per farm. In 1930, however, $868 per farm was deducted for the labor of the operator and the family as compared with $675 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $3,087 in excess of cash expenses as compared with $1,142 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*Edwin Bay, farm adviser in Sangamon County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Sangamon County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$2 884	$2 405
Feed, grain and supplies	2 072	1 457
Machinery	1 752	1 625
Improvements	4 210	4 123
Total inventory	10 918	9 610
Decrease in inventory		-$1 308
Total cash sales for 1931		4 204
Total cash purchases for 1931		3 062
Excess of cash sales over cash purchases		1 142
Decrease in inventory		1 308
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)		166

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supplies were due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Sangamon County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 34 farms included in this study ranged in size from 80 to 638 acres per farm. Only 1 was smaller than 100 acres while 12 were larger than 300 acres. The average size for all farms in the group was 268 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	300 - 339	5
100 - 139	4	340 - 379	2
140 - 179	3	380 - 419	1
180 - 219	5	420 - 459	1
220 - 259	7	460 - 599	2
260 - 299	2	600 - 639	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 34 farms included in the present study, the value of bare land per acre was $64 to $109 on 6 farms; $110 to $149 on 10 farms, and $150 to $200 on 18 farms. The average value was $141 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $182 per acre.

As previously stated, the average for all farms indicated a loss of $841 per farm after deducting $675 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2,711 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $249; while the operators of 9 farms sustained losses of more than $1,249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$2 249 to 1 750	1	-250 to -749	7
1 749 to 1 250	0	-750 to -1 249	8
1 249 to 750	1	-1 250 to -1 749	2
749 to 250	2	-1 750 to -2 249	2
249 to -249	6	-2 250 to -2 749	2
		-2 750 to -3 249	3

A comparison of the 11 farms having the highest rate earned on investment with the 11 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 283 acres in size as compared with 258 for the less profitable group. The larger farms had a higher value per acre for the bare land, and also a higher total investment per acre. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 5.4 bushels more corn, 12.1 bushels more oats, 7.1 bushels more soybeans, and 1.7 bushels more wheat per acre than did the least profitable farms. The larger crop production on the most profitable farms accounted for the fact that the closing inventory of feed and grain was $358 per farm less than the beginning inventory, while on the least profitable farms it was $896 less than the beginning.

The investment per farm in livestock was about the same on the most profitable farms as on the least profitable yet the income was $453 per farm higher while at the same time the increase from the feed and grain account was larger by $1,170. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $144 for the more profitable farms as compared with $84 for the less profitable farms. There were 5.7 pigs weaned per litter on the more profitable farms and 6.1 on the less profitable farms yet the average income per litter farrowed was $54 and $42 respectively. Dairy sales were $18 per cow higher and returns per $100 invested in poultry $20 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.47 as compared with $7.03 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.77 as compared with $14.61 for the least profitable group. The cost of power and machinery was 59 cents per crop acre lower for the more successful farms, and the man labor cost was $1.61 an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $837 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of 70 cents per acre for the more profitable farms as compared with a loss of $7.58 per acre for the less profitable group. For the first group this was a return of .37% on the capital invested in the business and for the second group a loss of 4.36%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

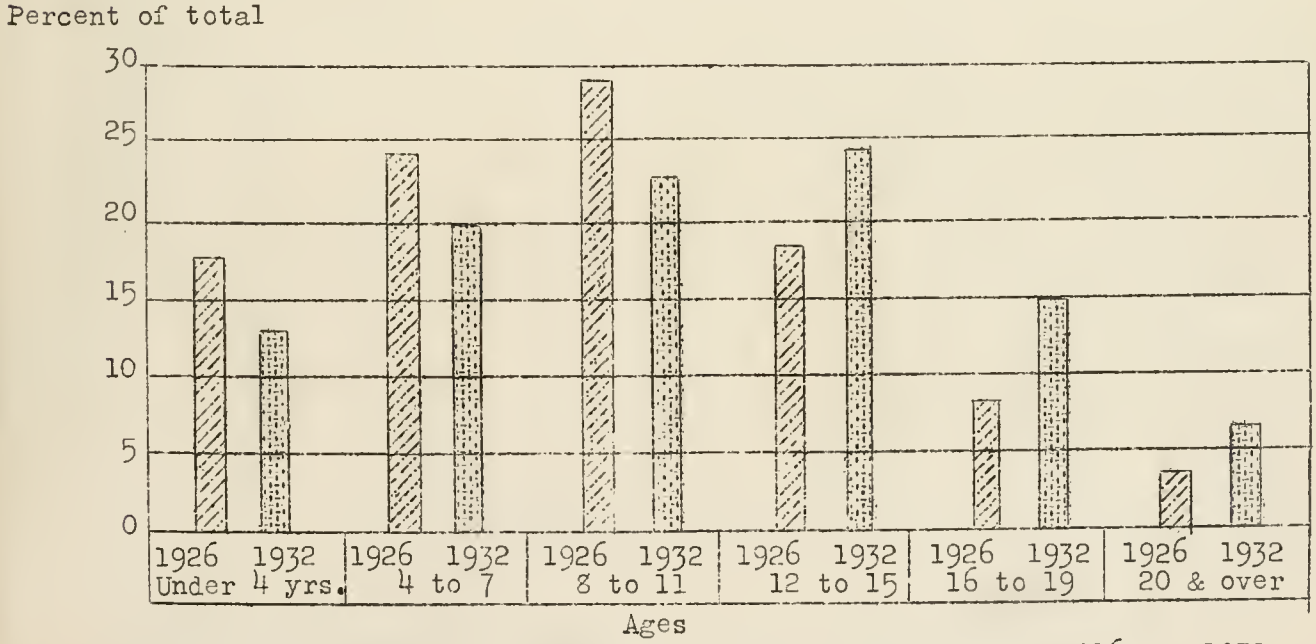
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Sangamon County for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 but was not so low in 1931. The average land value was $13 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The increase from livestock was lower in 1931 than in 1930. There was a decrease in the crops account in spite of the better yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Sangamon County for 1928-1931

Items	1928	1929	1930	1931
Number of farms	38	33	36	34
Average size of farms, acres	280	246	266	268
Average rate earned, to pay for management, risk and capital	5.0	5.6	1.9	-1.7
Average labor and management wage	$676	$1032	$-962	$-2711
Gross income per acre	22.62	24.92	16.40	7.58
Operating cost per acre	11.96	12.79	12.49	10.71
Average value of land per acre	172	166	154	141
Total investment per acre	215	215	203	182
Investment per farm in:				
Total livestock	3409	3359	3542	2884
Cattle	1395	1550	1520	1272
Hogs	1051	961	1079	816
Poultry	113	131	125	114
Gross income per farm	6334	6131	4360	2031
Income per farm from:				
Crops	2091	2004	723	—
Miscellaneous income	107	57	95	89
Total livestock	4136	4070	3542	1942
Cattle	1279	886	645	342
Dairy sales	431	528	365	357
Hogs	2098	2289	2260	1103
Poultry	210	259	204	127
Average yield of corn in bu.	47	50	34	43
Average yield of wheat in bu.	18	21	23	27

Investments, Receipts, Expenses, and Earnings on
34 Sangamon County Farms, 1931

Items	Your farm	Average of 34 farms	11 most profitable farms	11 least profitable farms
CAPITAL INVESTMENTS				
Land		37 782	41 969	33 650
Farm improvements		4 210	3 892	4 110
Livestock total		2 884	2 967	3 058
Horses		579	712	537
Cattle		1 272	1 439	1 264
Hogs		816	583	1 044
Sheep		103	107	114
Poultry		114	126	99
Machinery and equipment		1 752	1 899	1 710
Feed, grain and supplies		2 072	1 818	2 360
Total capital investment	$	$48 700	$52 545	$44 888
RECEIPTS AND NET INCREASES				
Livestock total		1 942	2 202	1 749
Horses		---	12	---
Cattle		342	403	298
Hogs		1 103	958	1 082
Sheep		13	50	---
Poultry		39	39	42
Egg sales		88	114	66
Dairy sales		357	626	261
Feed, grain and supplies		---	333	---
Labor off farm		50	71	19
Miscellaneous receipts		39	72	46
Total receipts & net increases	$	$ 2 031	$ 2 678	$ 1 814
EXPENSES AND NET DECREASES				
Farm improvements		239	199	253
Horses		40	---	68
Miscellaneous livestock decreases Sheep		---	---	16
Machinery and equipment		468	477	519
Feed, grain and supplies		192	---	837
Livestock expense		59	54	66
Crop expense		175	158	148
Hired labor		503	421	619
Taxes		488	518	482
Miscellaneous expenses		33	33	31
Total expenses & net decreases	$	$ 2 197	$ 1 860	$ 3 039
RECEIPTS LESS EXPENSES	$	$ -166	$ 818	$-1 225
Total unpaid labor		675	621	730
Operator's labor		565	518	600
Family labor		110	103	130
Net income from investment and management		-841	197	-1 955
RATE EARNED ON INVESTMENT	%	-1.73%	.37%	-4.36%
Return to capital and operator's labor and management		-276	715	-1 355
5% of capital invested		2 435	2 627	2 244
LABOR AND MANAGEMENT WAGE	$	$-2 711	$-1 912	$-3 599

Chart for Studying the Efficiency of Various Parts of Your Business
Sangamon County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 34 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

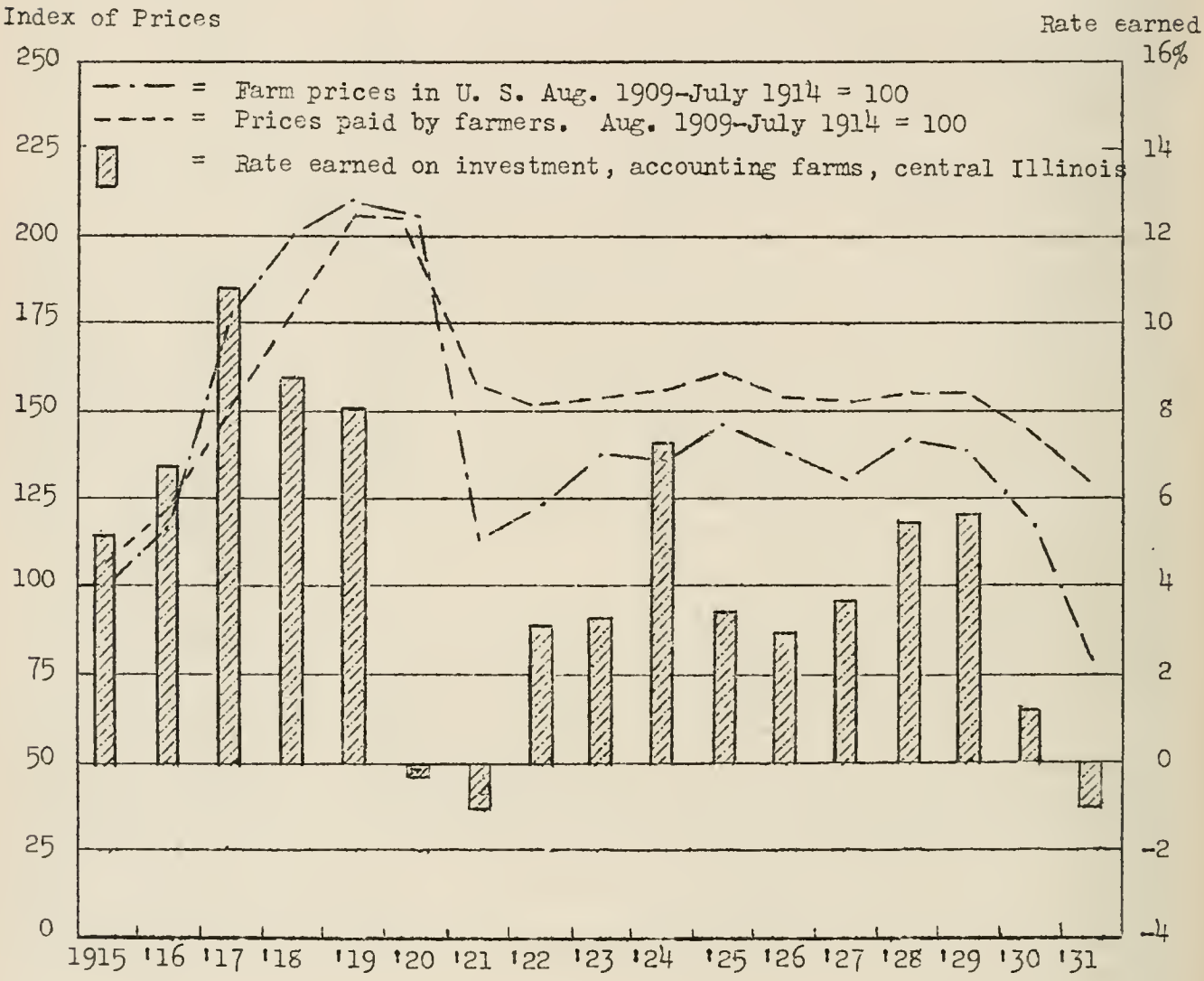
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.3	57	60	41	130	265	90	180	105	15	.10	20	70	15	5 500	410
4.3	55	58	39	120	245	85	170	100	14	.60	25	80	14	5 000	390
3.3	53	56	37	110	225	80	160	95	13	1.10	30	90	13	4 500	370
2.3	51	54	35	100	205	75	150	90	12	1.60	35	100	12	4 000	350
1.3	49	52	33	90	185	70	140	85	11	2.10	40	110	11	3 500	330
0.3	47	50	31	80	165	65	130	80	10	2.60	45	120	10	3 000	310
-0.7	45	48	29	70	145	60	120	75	9	3.10	50	130	9	2 500	290
-1.7	43	46	27	60	125	55	110	70	8	3.60	55	140	8	2 000	270
-2.7	41	44	25	50	105	50	100	65	7	4.10	60	150	7	1 500	250
-3.7	39	42	23	40	85	45	90	60	6	4.60	65	160	6	1 000	230
-4.7	37	40	21	30	65	40	80	55	5	5.10	70	170	5	500	210
-5.7	35	38	19	20	45	35	70	50	4	5.60	75	180	4	0	190
-6.7	33	36	17	10	25	30	60	45	3	6.10	80	190	3	---	170
-7.7	31	34	15	0	5	25	50	40	2	6.60	85	200	2	---	150
-8.7	29	32	13	--	--	20	40	35	1	7.10	90	210	1	---	130

Factors Helping to Analyze the Farm Business on 34 Sangamon County Farms in 1931

Items	Your farm	Average of 34 farms	11 most profitable farms	11 least profitable farms
Size of farm--acres		268.1	282.7	257.9
Percent of land area tillable		90.8	89.5	89.4
Gross receipts per acre		7.58	9.47	7.03
Total expenses per acre		10.71	8.77	14.61
Net receipts per acre		-3.13	.70	-7.58
Value of land per acre		141	148	130
Total investment per acre		182	186	174
Acres in Corn		96.8	99.2	93.9
Oats		23.1	23.7	14.5
Wheat		42.2	50.2	36.5
Soybeans		19.1	17.0	23.5
Crop yields--Corn, bu. per acre		43.3	45.2	39.8
Oats, bu. per acre		45.5	50.0	37.9
Wheat, bu. per acre		26.8	27.8	26.1
Soybeans, bu. per acre		22.8	26.3	19.2
Value of feed fed to productive livestock		1 754	1 521	2 069
Returns per $100 of feed fed to productive livestock		111	144	84
Returns per $100 invested in:				
Cattle		59	77	43
Poultry		124	137	117
Pigs weaned per litter		6.1	5.7	6.1
Income per litter farrowed		55	54	42
Dairy sales per dairy cow		71	80	62
Investment in productive livestock per acre		7.78	7.24	9.24
Receipts from productive livestock per acre		7.24	7.75	6.72
Power and machinery cost per crop acre		3.59	3.33	3.92
Machinery cost per crop acre		2.20	2.17	2.51
Value of feed fed to horses		255	267	223
Man labor cost per $100 gross income		56	37	73
Man labor cost per acre		4.21	3.55	5.16
Expenses per $100 gross income		141	93	208
Farm improvements cost per acre		.89	.70	.98
Farms with tractor		62%	64%	73%
Excess of sales over cash expenses		1 142	1 947	213
Decrease in inventory		1 308	1 129	1 438

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-TWO FARMS IN MASON AND MENARD COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright and H. C. M. Case*

The average of farm earnings, on account keeping farms in Mason and Menard counties was lower in 1931 than in 1930. In 1930 the average net loss was $110 per farm while in 1931 there was an average loss of $761 per farm. In 1930, however, $860 per farm was deducted for the labor of the operator and the family as compared with $741 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2102 in excess of cash expenses as compared with $920 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

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The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 32 farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 244		$1 856
Feed, grain and supplies	1 874		1 551
Machinery	1 888		1 732
Improvements	3 834		3 761
Total inventory	$9 840		$8 900
Decrease in inventory		$ 940	
Total cash sales for 1931		$3 018	
Total cash purchases for 1931		2 098	
Excess of cash sales over cash purchases		920	
Decrease in inventory		940	
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)		20	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

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Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Mason and Menard counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 32 farms included in this study ranged in size from 143 to 447 acres per farm. Eight were smaller than 180 acres and 11 were larger than 300 acres. The average size for all farms in the group was 258 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
140 - 179	8	300 - 339	2
180 - 219	7	340 - 379	3
220 - 259	5	380 - 419	4
260 - 299	1	420 - 459	2

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 32 farms included in the present study, the value of bare land per acre was $10 to $69 on 4 farms; $70 to $129 on 19 farms, and $130 to $189 on 9 farms. The average value was $108 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $146 per acre.

As previously stated, the average for all farms indicated a loss of $761 per farm after deducting $741 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2039 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249; while the operators of 9 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to $ 750	1	$-1 250 to $-1 749	6
749 to 250	2	-1 750 to -2 249	1
249 to -249	7	-2 250 to -2 749	1
-250 to -749	7	-2 750 to -3 249	0
-750 to -1 249	6	-3 250 to -3 749	1

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 244 acres in size as compared with 273 for the less profitable group. The percentage of the land area tillable and the value per acre for the bare land was about the same for both groups. The cropping system was also the same for the two groups and there was but little difference in the crop yields. The most profitable farms grew 4.2 bushels less corn, .1 bushels more oats, .4 less soybeans, and .2 bushels less wheat per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $21 per farm higher than the beginning inventory, while on the less profitable farms it was $798 less than the beginning.

The investment per farm in livestock was $586 less on the most profitable farms than on the least profitable and the income was $144 per farm less, while at the same time the increase from feed and grain account was larger by $954. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $141 for the more profitable farms as compared with $92 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 6.1 pigs weaned per litter on the more profitable farms and 6.7 on the less profitable farms, yet the returns per litter were $62 and $54 respectively. Dairy sales were $10 per cow higher and returns per $100 invested in poultry $42 higher on the more profitable farms. The larger income from the grain account and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.33 as compared with $5.74 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.74 as compared with $12.03 for the least profitable group. The cost of power and machinery was $1.71 per crop acre lower for the more successful farms, and the man labor cost was $.76 an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $176 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $.59 per acre for the more profitable farms as compared with a loss of $6.29 per acre for the less profitable group. For the first group this was a return of .39% on the capital invested in the business and for the second group a loss of 3.95%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor, feed and improvements accounts.

There was a decrease in inventory of $486 per farm on the more profitable farms as compared with a decrease of $1721 on the less profitable farms.

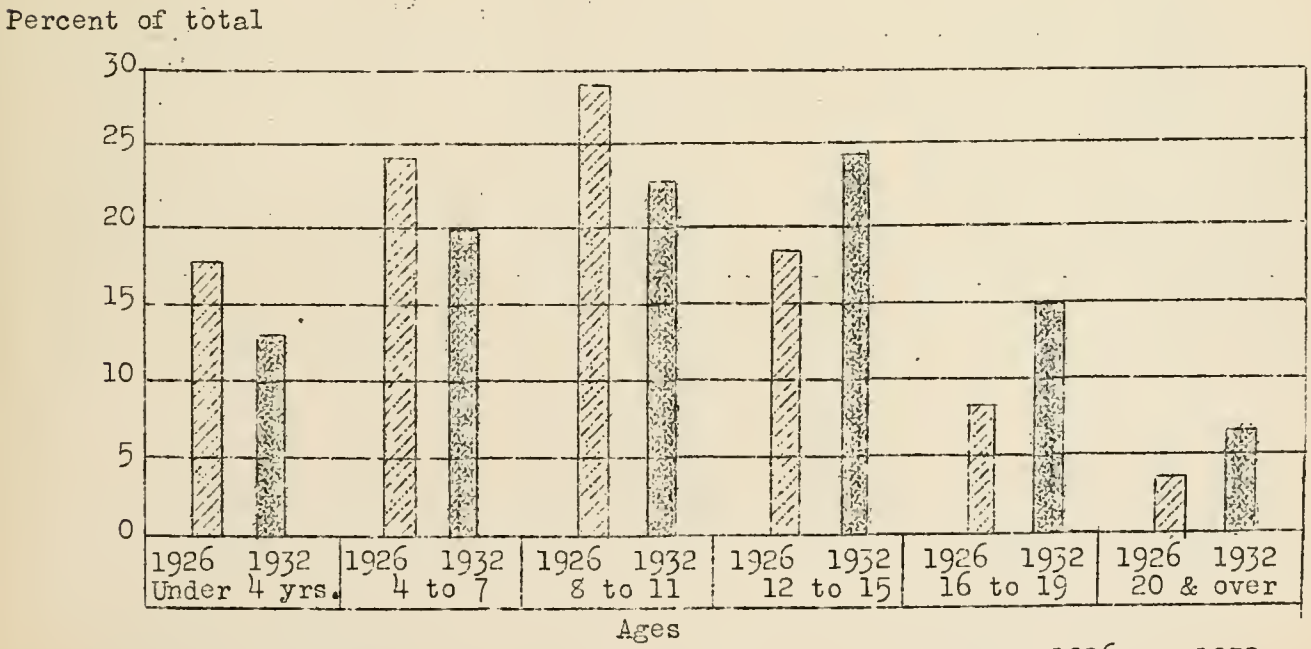
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Three-Year Period

Some comparative investment and earning data on accounting farms in Mason and Menard counties for 1929 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The income in 1931 was lower from both grain and livestock.

Comparison of Earnings and Investments on Accounting Farms in Mason and Menard Counties for 1929-1931

Items	1929[1]	1930	1931
Number of farms	52	33	32
Average size of farms, acres	267	248	257.5
Average rate earned, to pay for management, risk and capital	6.0%	-0.3%	-2.0%
Average labor and management wage	$1116	$-1223	$-2039
Gross income per acre	19.02	9.36	6.64
Operating cost per acre	10.07	9.80	9.59
Average value of land per acre	106	106	108
Total investment per acre	149	148	146
Investment per farm in:			
Total livestock	2950	2061	2244
Cattle	1252	754	882
Hogs	889	526	599
Poultry	138	138	128
Gross income per farm	5080	2325	1709
Income per farm from:			
Crops	1295	824	347
Miscellaneous income	59	67	32
Total livestock	3726	1434	1330
Cattle	724	64	194
Dairy sales	301	354	233
Hogs	2353	822	705
Poultry	301	194	193
Average yield of corn in bu.	43	24	43
Average yield of wheat in bu.	16	22	18

1/ Records from Brown, Pike and Cass counties included for 1929.

Investments, Receipts, Expenses, and Earnings on
32 Mason and Menard County Farms, 1931

Items	Your farm	Average of 32 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		27 712	27 638	31 267
Farm improvements		3 834	3 764	4 484
Livestock total		2 244	2 065	2 651
Horses		599	547	695
Cattle		882	809	1 149
Hogs		599	579	656
Sheep		36	25	43
Poultry		128	105	108
Machinery and equipment		1 888	1 810	2 524
Feed, grain and supplies		1 874	1 593	2 656
Total capital investment	$	$37 552	$36 870	$43 582
RECEIPTS AND NET INCREASES				
Livestock total		1 330	1 414	1 558
Horses		--	--	--
Cattle		194	125	386
Hogs		705	801	802
Sheep		5	4	11
Poultry		91	105	79
Egg sales		102	95	77
Dairy sales		233	284	203
Feed, grain and supplies		347	778	--
Labor off farm		26	71	5
Miscellaneous receipts		6	10	5
Total receipts & net increases	$	$ 1 709	$ 2 273	$ 1 568
EXPENSES AND NET DECREASES				
Farm improvements		191	157	281
Horses		69	41	65
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		432	335	672
Feed, grain and supplies		--	--	176
Livestock expense		46	47	61
Crop expense		198	186	213
Hired labor		325	256	465
Taxes		440	388	535
Miscellaneous expenses		28	31	30
Total expenses & net decreases	$	$ 1 729	$ 1 441	$ 2 498
RECEIPTS LESS EXPENSES	$	$ -20	$ 832	$ -930
Total unpaid labor		741	689	790
Operator's labor		600	600	600
Family labor		141	89	190
Net income from investment and management		-761	143	-1 720
RATE EARNED ON INVESTMENT	%	-2.03%	.39%	-3.95%
Return to capital and operator's labor and management		-161	743	-1 120
5% of capital invested		1 878	1 844	2 179
LABOR AND MANAGEMENT WAGE	$	$-2 039	$-1 101	$-3 299

Chart for Studying the Efficiency of Various Parts of Your Business
Mason and Menard Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 32 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

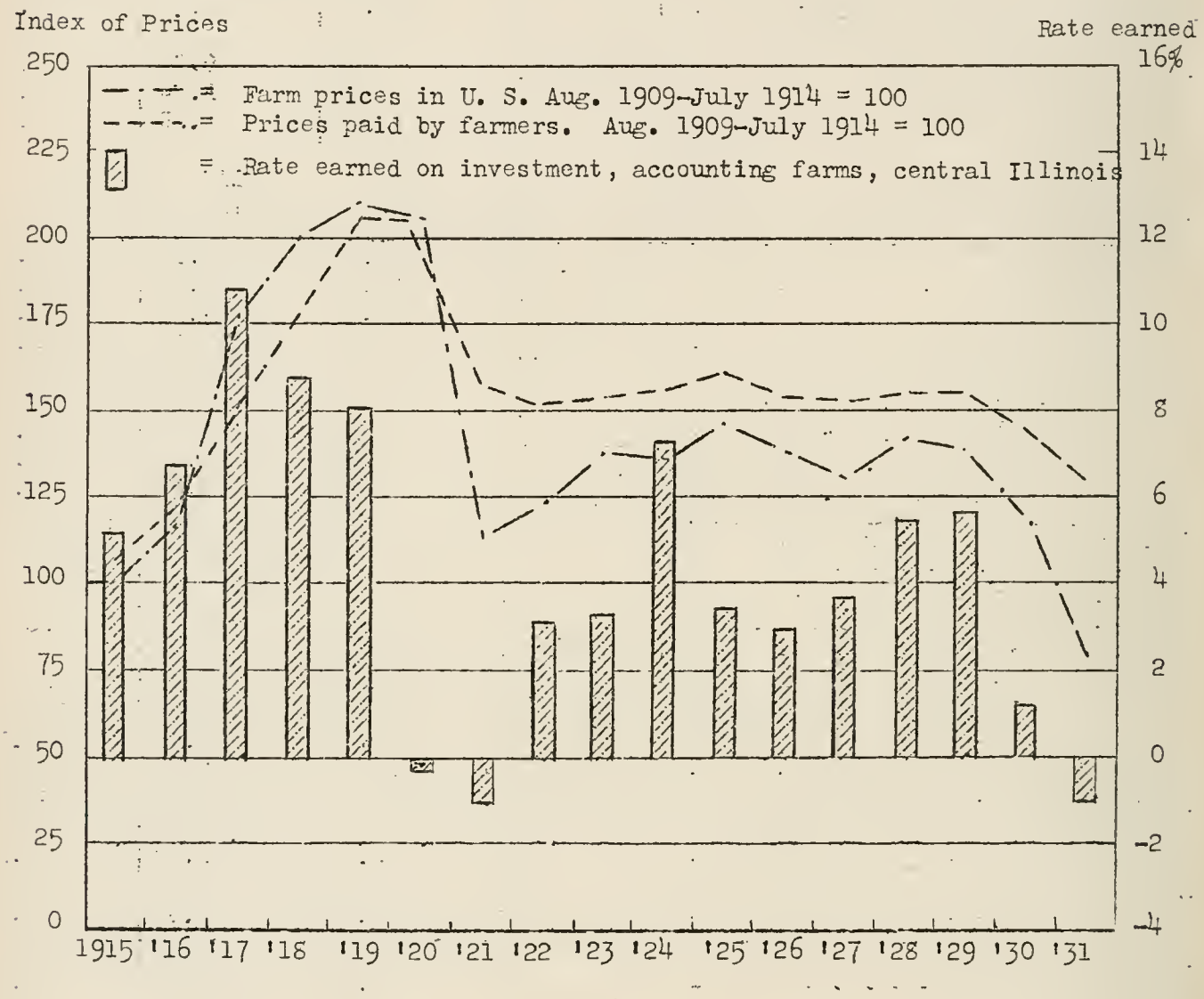
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs- income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.0	57	48	32	120	300	95	150	115	13	.05	25	75	14	3 800	400
4.0	55	46	30	110	280	90	145	105	12	.55	30	85	13	3 500	380
3.0	53	44	28	100	260	85	140	95	11	1.05	35	95	12	3 200	360
2.0	51	42	26	90	240	80	135	85	10	1.55	40	105	11	2 900	340
1.0	49	40	24	80	220	75	130	75	9	2.05	45	115	10	2 600	320
.0	47	38	22	70	200	70	125	65	8	2.55	50	125	9	2 300	300
-1.0	45	36	20	60	180	65	120	55	7	3.05	55	135	8	2 000	280
-2.0	43	34	18	50	160	60	115	45	6	3.55	60	145	7	1 700	260
-3.0	41	32	16	40	140	55	110	35	5	4.05	65	155	6	1 400	240
-4.0	39	30	14	30	120	50	105	25	4	4.55	70	165	5	1 100	220
-5.0	37	28	12	20	100	45	100	15	3	5.05	75	175	4	800	200
-6.0	35	26	10	10	80	40	95	5	2	5.55	80	185	3	500	180
-7.0	33	24	8	0	60	35	90	—	1	6.05	85	195	2	200	160
-8.0	31	22	6	--	40	30	85	--	0	6.55	90	205	1	--	140
-9.0	29	20	4	--	20	25	80	--	--	7.05	95	215	0	--	120

Factors Helping to Analyze the Farm Business on
32 Mason and Menard County Farms in 1931

Items	Your farm	Average of 32 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	257.5	243.5	273.4
Percent of land area tillable		88.2	92.4	90.8
Gross receipts per acre	_____	6.64	9.33	5.74
Total expenses per acre		9.59	8.74	12.03
Net receipts per acre		-2.95	.59	-6.29
Value of land per acre		108	113	114
Total investment per acre		146	151	159
Acres in Corn	_____	85.7	83.1	96.4
Oats	_____	23.2	28.4	25.7
Wheat	_____	53.9	54.4	52.7
Soybeans	_____	10.9	15.1	12.5
Crop yields--Corn, bu. per acre	_____	42.8	43.0	47.2
Oats, bu. per acre	_____	33.8	35.0	34.9
Wheat, bu. per acre	_____	17.9	23.2	23.4
Soybeans, bu. per acre	_____	19.5	19.9	20.3
Value of feed fed to productive livestock	_____	1 168	1 001	1 693
Returns per $100 of feed fed to productive livestock	_____	114	141	92
Returns per $100 invested in:				
Cattle	_____	52	58	55
Poultry	_____	158	196	154
Pigs weaned per litter	_____	6.3	6.1	6.7
Income per litter farrowed	_____	58	62	54
Dairy sales per dairy cow	_____	45	52	42
Investment in productive livestock per acre	_____	5.76	5.63	6.29
Receipts from productive livestock per acre	_____	5.17	5.81	5.70
Power and machinery cost per crop acre	_____	3.55	2.79	4.50
Machinery cost per crop acre	_____	2.17	1.65	3.14
Value of feed fed to horses	_____	206	191	224
Man labor cost per $100 per gross income	_____	61	41	80
Man labor cost per acre	_____	4.04	3.81	4.57
Expenses per $100 gross income	_____	145	94	210
Farm improvements cost per acre	_____	.74	.64	1.03
Farms with tractor	_____	66	70	70
Excess of sales over cash expenses	_____	920	1 318	791
Decrease in inventory	_____	940	486	1 721

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-FOUR FARMS IN MORGAN COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, H. G. Russell, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Morgan County, was lower in 1931 than in 1930. In 1930 the average net income was $868 per farm while in 1931 there was an average loss of $478 per farm. In 1930, however, $852 per farm was deducted for the labor of the operator and the family as compared with $743 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2607 in excess of cash expenses as compared with $1336 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*I. E. Parett, farm adviser in Morgan County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Morgan County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$2 309	$1 775
Feed, grain and supplies	2 059	1 611
Machinery	4 130	4 089
Improvements	1 754	1 706
Total inventory	10 252	9 181
Decrease in inventory		$1 071
Total cash sales for 1931		$3 474
Total cash purchases for 1931		2 138
Excess of cash sales over cash purchases		1 336
Decrease in inventory		1 071
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		265

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives, while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Morgan County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 34 farms included in this study ranged in size from 80 to 492 acres per farm. Four were smaller than 140 acres and 6 were larger than 340 acres. The average size for all farms in the group was 234 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	300 - 339	2
100 - 139	2	340 - 379	2
140 - 179	8	380 - 419	1
180 - 219	6	420 - 459	0
220 - 259	7	460 - 499	3
260 - 299	1		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 34 farms included in the present study, the value of bare land per acre was $50 to $109 on 4 farms; $110 to $169 on 24 farms and $170 to $209 on 6 farms. The average value was $138 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $181 per acre.

As previously stated, the average for all farms indicated a loss of $478 per farm after deducting $743 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2005 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Six of the farms netted their operators incomes of more than $249; while the operators of 4 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	3		
1 249 to 750	0	-750 to -1 249	12
749 to 250	3	-1 250 to -1 749	2
249 to -249	6	-1 750 to -2 249	1
- 250 to -749	6	-2 250 to -2 749	1

A comparison of the 11 farms having the highest rate earned on investment with the 11 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 249 acres in size as compared with 212 for the less profitable group. The larger farms had a higher percentage of the land area tillable but the same value per acre for the bare land. The most profitable farms grew 1.8 bushels less corn, .3 bushels more oats, 2.6 bushels more soybeans, and 3.4 bushels less wheat per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $205 per farm less than the beginning inventory, while on the less profitable farms it was $582 less than the beginning.

The investment per farm in livestock was $295 more on the most profitable farms than on the least profitable and the income was $610 per farm higher while at the same time the increase from the feed and grain account was larger by $866. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $142 for the more profitable farms as compared with $109 for the less profitable farms. There were 6.2 pigs weaned per litter on the more profitable farms and 6.8 on the less profitable farms, although the income per litter farrowed was $55 and $48 respectively. Dairy sales were $44 per cow higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.66 as compared with $6.50 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.57 as compared with $12.10 for the least profitable group. The cost of power and machinery was $1.63 per crop acre lower for the more successful farms, and the man labor cost was $.76 an acre lower. Both the investment per farm and the expenses per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $239 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.09 per acre for the more profitable farms as compared with a loss of $5.60 per acre for the less profitable group. For the first group this was a return of 1.26% on the capital invested in the business and for the second group a loss of 3.24%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor, feed and improvements accounts.

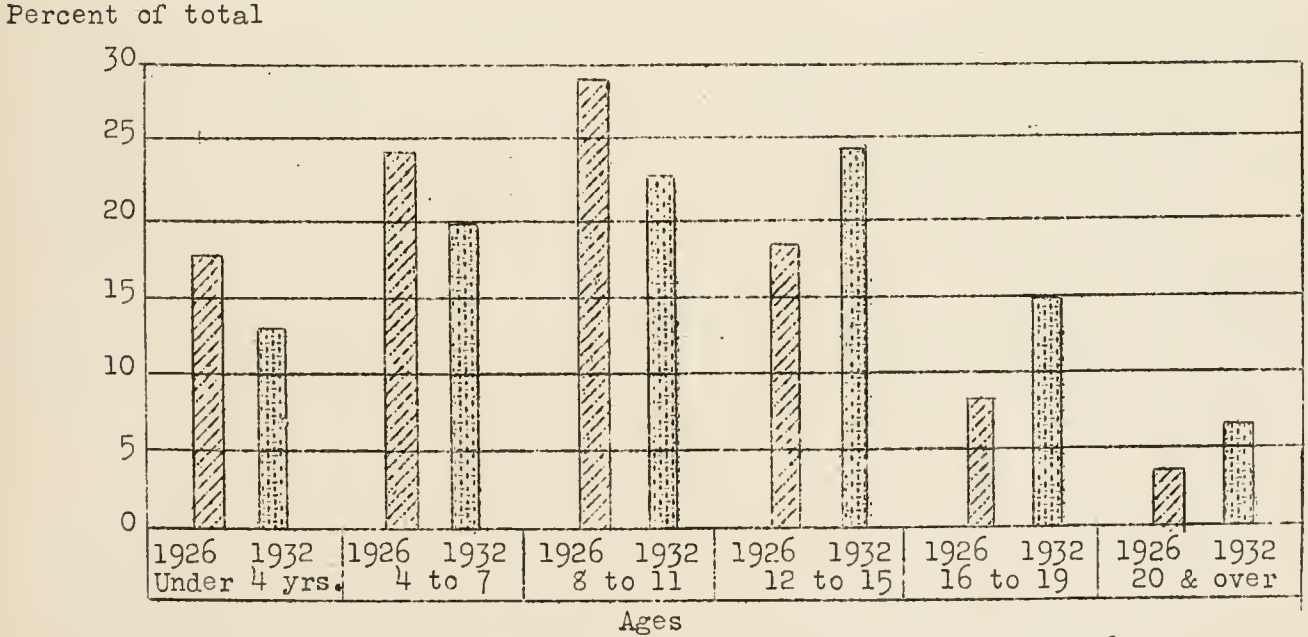
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Three-Year Period

Some comparative investment and earning data on accounting farms in Morgan County for 1929 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. There was a decrease in income from practically all sources due to the decline in prices during 1931.

Comparison of Earnings and Investments on Accounting Farms in Morgan County for 1929-1931

Items	1929	1930	1931
Number of farms	31	41	34
Average size of farms, acres	242	230	234
Average rate earned, to pay for management, risk and capital	7.1%	2.1%	-1.1%
Average labor and management wage	$1733	$-529	$-2005
Gross income per acre	25.50	14.84	7.71
Operating cost per acre	11.36	11.06	9.75
Average value of land per acre	151	136	138
Total investment per acre	198	183	181
Investment per farm in:			
Total livestock	2879	2691	2309
Cattle	1149	1039	870
Hogs	1054	963	840
Poultry	137	138	120
Gross income per farm	6170	3406	1809
Income per farm from:			
Crops	2173	629	185
Miscellaneous income	67	96	75
Total livestock	3930	2681	1549
Cattle	729	283	99
Dairy sales	255	204	239
Hogs	2629	1997	1058
Poultry	274	185	150
Average yield of corn in bu.	49	34	48
Average yield of oats in bu.	41	34	40

Investments, Receipts, Expenses, and Earnings on
34 Morgan County Farms, 1931

Items	Your farm	Average of 34 farms	11 most profitable farms	11 least profitable farms
CAPITAL INVESTMENTS				
Land		32 291	31 800	26 864
Farm Improvements		4 130	3 413	3 859
Livestock total		2 309	2 369	2 074
Horses		412	420	396
Cattle		870	930	780
Hogs		840	819	722
Sheep		67	58	81
Poultry		120	142	95
Machinery and equipment		1 754	1 729	1 755
Feed, grain and supplies		2 059	1 979	2 029
Total capital investment	$	$42 543	$41 290	$36 551
RECEIPTS AND NET INCREASES				
Livestock total		1 549	1 945	1 335
Horses		---	---	---
Cattle		99	134	76
Hogs		1 058	1 063	1 034
Sheep		3	13	2
Poultry		64	76	60
Egg sales		86	121	67
Dairy sales		239	538	96
Feed, grain and supplies		185	627	--
Labor off farm		54	87	20
Miscellaneous receipts		21	--	21
Total receipts & net increases	$	$1 809	$2 659	$1 376
EXPENSES AND NET DECREASES				
Farm improvements		173	112	201
Horses		48	25	66
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		389	316	450
Feed, grain and supplies		--	--	239
Livestock expense		45	44	45
Crop expense		151	133	145
Hired labor		361	365	332
Taxes		348	363	296
Miscellaneous expenses		29	32	27
Total expenses & net decreases	$	$1 544	$1 390	$1 801
RECEIPTS LESS EXPENSES	$	$ 265	$1 269	$ -425
Total unpaid labor		743	748	760
Operator's labor		600	600	600
Family labor		143	148	160
Net income from investment and management		-478	521	-1 185
RATE EARNED ON INVESTMENT	%	-1.12%	1.26%	-3.24%
Return to capital and operator's labor and management		122	1 121	- 585
5% of capital invested		2 127	2 064	1 829
LABOR AND MANAGEMENT WAGE	$	$-2 005	$- 943	$-2 414

Chart for Studying the Efficiency of Various Parts of Your Business
Morgan County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 34 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

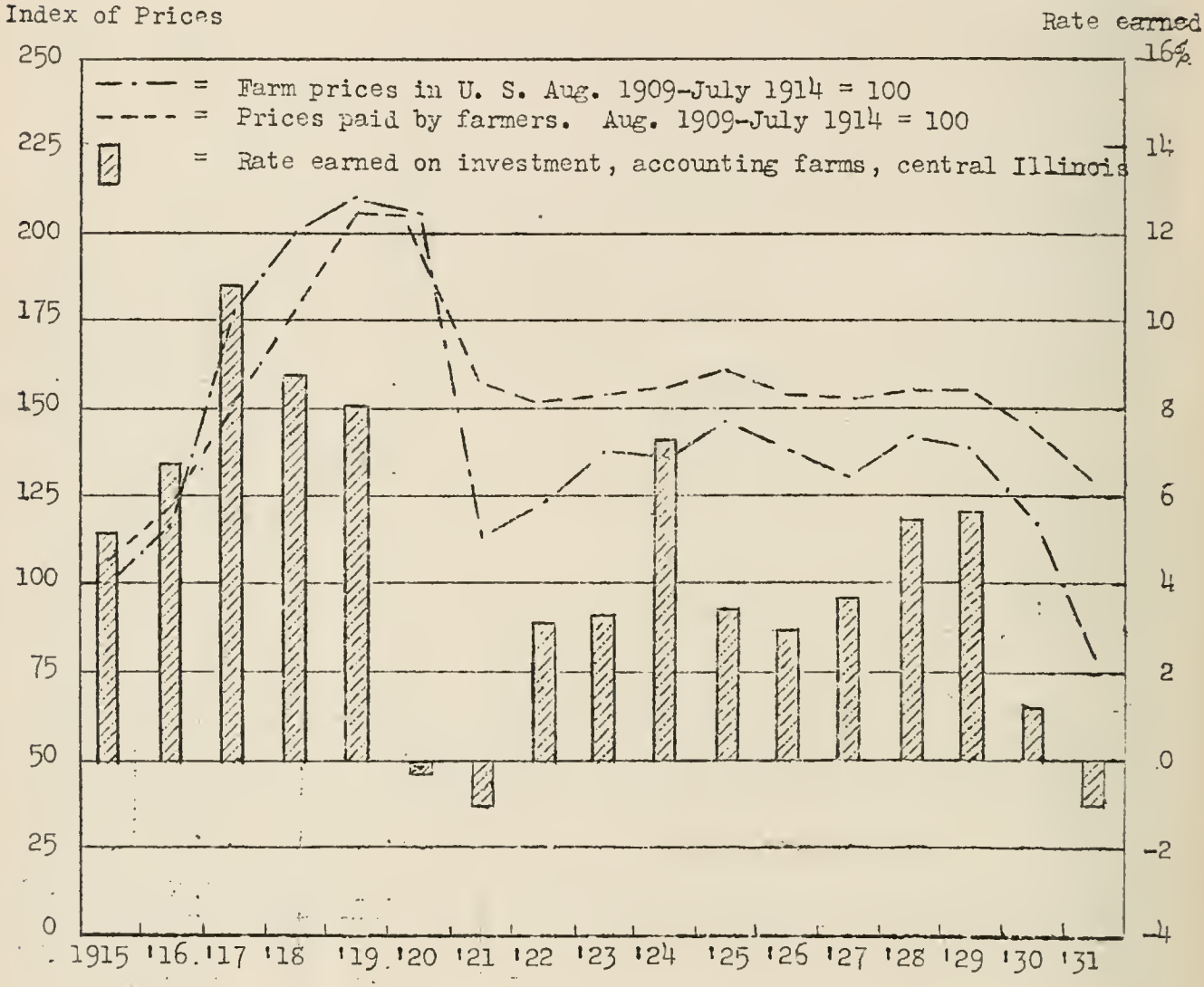
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
6.0	62	54	43	75	205	75	155	85	14	--	39	90	15	3 900	370
5.0	60	52	41	70	195	70	150	80	13	.40	42	95	14	3 600	350
4.0	58	50	39	65	185	65	145	75	12	.90	45	100	13	3 300	330
3.0	56	48	37	60	175	60	140	70	11	1.40	48	105	12	3 000	310
2.0	54	46	35	55	165	55	135	65	10	1.90	51	110	11	2 700	290
1.0	52	44	33	50	155	50	130	60	9	2.40	54	115	10	2 400	270
.0	50	42	31	45	145	45	125	55	8	2.90	57	120	9	2 100	250
-1.0	48	40	29	40	135	40	120	50	7	3.40	60	125	8	1 800	230
-2.0	46	38	27	35	125	35	115	45	6	3.90	63	130	7	1 500	210
-3.0	44	36	25	30	115	30	110	40	5	4.40	66	135	6	1 200	190
-4.0	42	34	23	25	105	25	105	35	4	4.90	69	140	5	900	170
-5.0	40	32	21	20	95	20	100	30	3	5.40	72	145	4	600	150
-6.0	38	30	19	15	85	15	95	25	2	5.90	75	150	3	300	130
-7.0	36	28	17	10	75	10	90	20	1	6.40	78	155	2	0	110
-8.0	34	26	15	5	65	5	85	15	0	6.90	81	160	1	--	90

Factors Helping to Analyze the Farm Business on
34 Morgan County Farms in 1931

Items	Your farm	Average of 34 farms	11 most profitable farms	11 least profitable farms
Size of farm--acres	____	234.5	249.4	211.6
Percent of land area tillable		86.2	90.3	79.4
Gross receipts per acre	____	7.71	10.66	6.50
Total expenses per acre		9.75	8.57	12.10
Net receipts per acre		-2.04	2.09	-5.60
Value of land per acre		138	128	127
Total investment per acre		181	165	173
Acres in Corn	____	89.5	99.9	77.5
Oats	____	20.4	24.1	18.4
Wheat	____	40.2	43.6	26.1
Soybeans	____	18.4	14.3	18.5
Crop yields--Corn, bu. per acre	____	47.9	47.7	49.5
Oats, bu. per acre	____	40.4	39.2	38.9
Wheat, bu. per acre	____	29.1	27.4	30.8
Soybeans, bu. per acre	____	24.6	25.9	23.3
Value of feed fed to productive livestock	____	1 297	1 371	1 225
Returns per $100 of feed fed to productive livestock	____	119	142	109
Returns per $100 invested in:				
Cattle	____	42	72	24
Poultry	____	133	144	144
Pigs weaned per litter	____	5.2	6.2	6.8
Income per litter farrowed	____	41	55	48
Dairy sales per dairy cow	____	52	72	28
Investment in productive livestock per acre	____	7.08	7.26	6.90
Receipts from productive livestock per acre	____	6.61	7.80	6.31
Power and machinery cost per crop acre	____	3.42	2.82	4.45
Machinery cost per crop acre	____	2.16	1.58	2.99
Value of feed fed to horses	____	180	224	154
Man labor cost per $100 gross income	____	58	40	78
Man labor cost per acre	____	4.48	4.31	5.07
Expenses per $100 gross income	____	126	80	186
Farm improvements cost per acre	____	.74	.45	.95
Farms with tractor	____	76%	73%	73%
Excess of sales over cash expenses	____	1 336	1 816	989
Decrease in inventory	____	1 071	547	1 414

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN SCOTT COUNTY, ILLINOIS. 1931

Prepared by P. E. Johnston, L. Wright and H. C. M. Case*

The average of farm earnings, on account keeping farms in Scott County, was lower in 1931 than in 1930. In 1930 the average net income was $874 per farm while in 1931 there was an average loss of $419 per farm. In 1930, however, $849 per farm was deducted for the labor of the operator and the family as compared with $714 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2179 in excess of cash expenses as compared with $1032 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*Alfred Tate, farm adviser in Scott County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Scott County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$2 305	$1 876	
Feed, grain and supplies	1 689	1 564	
Machinery	1 420	1 357	
Improvements	2 866	2 746	
Total inventory	$8 280	$7 543	
Decrease in inventory			$ 737
Total cash sales for 1931			$3 168
Total cash purchases for 1931			2 136
Excess of cash sales over cash purchases			1 032
Decrease in inventory			737
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			295

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931. There were 1896 bushels more corn and 145 bushels more oats per farm on hand at the end of the year than at the beginning.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Scott County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 73 to 570 acres per farm. Two were smaller than 140 acres and 5 were larger than 340 acres. The average size for all farms in the group was 253 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	300 - 339	1
100 - 139	1	340 - 379	1
140 - 179	6	380 - 419	0
180 - 219	3	420 - 459	1
220 - 259	7	460 - 499	2
260 - 299	6	500 - 539	0
		540 - 579	1

Since the efficienty of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $50 to $89 on 14 farms; $90 to $129 on 10 farms, and $130 to $169 on 4 farms. One farm was valued at $40 per acre and one at $180. The average value was $95 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $128 per acre.

As previously stated, the average for all farms indicated a loss of $419 per farm after deducting $714 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1441 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings From Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Seven of the farms netted their operators incomes of more than $249; while the operators of 4 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table.

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	2	- 750 to -1 249	5
749 to 250	5	-1 250 to -1 749	2
249 to -249	6	-1 750 to -2 249	2
- 250 to -749	8		

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 303 acres in size as compared with 246 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, and there was but little difference in the crop yields. The most profitable farms grew 1.7 bushels less corn, .4 bushels less oats, but 2.2 bushels more wheat per acre than did the least profitable farms. On the more profitable farms the closing inventory of feed and grain was $449 per farm higher than the beginning inventory, while on the less profitable farms it was $477 less than the beginning inventory.

The investment per farm in livestock was $612 less on the most profitable farms than on the least profitable yet the income was $130 per farm higher while at the same time the increase from the feed and grain account was larger by $1675. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $131 for the more profitable farms as compared with $90 for the less profitable farms. There were 6.5 pigs weaned per litter on the more profitable farms but only 5.6 on the less profitable farms. Dairy sales were $2 per cow higher and returns per $100 invested in poultry $31 higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.61 as compared with $5.40 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.32 as compared with $10.29 for the least profitable group. The cost of power and machinery was 77 cents per crop acre lower for the more successful farms, and the man labor cost was $1.03 an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $293 per farm in the feed and grain account, as compared with a gain of $1382 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.29 per acre for the more profitable farms as compared with a loss of $4.89 per acre for the less profitable group. For the first group this was a return of 1.06% on the capital invested in the business and for the second group a loss of 4.02%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the increase in the grain account. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, feed, labor and improvements accounts.

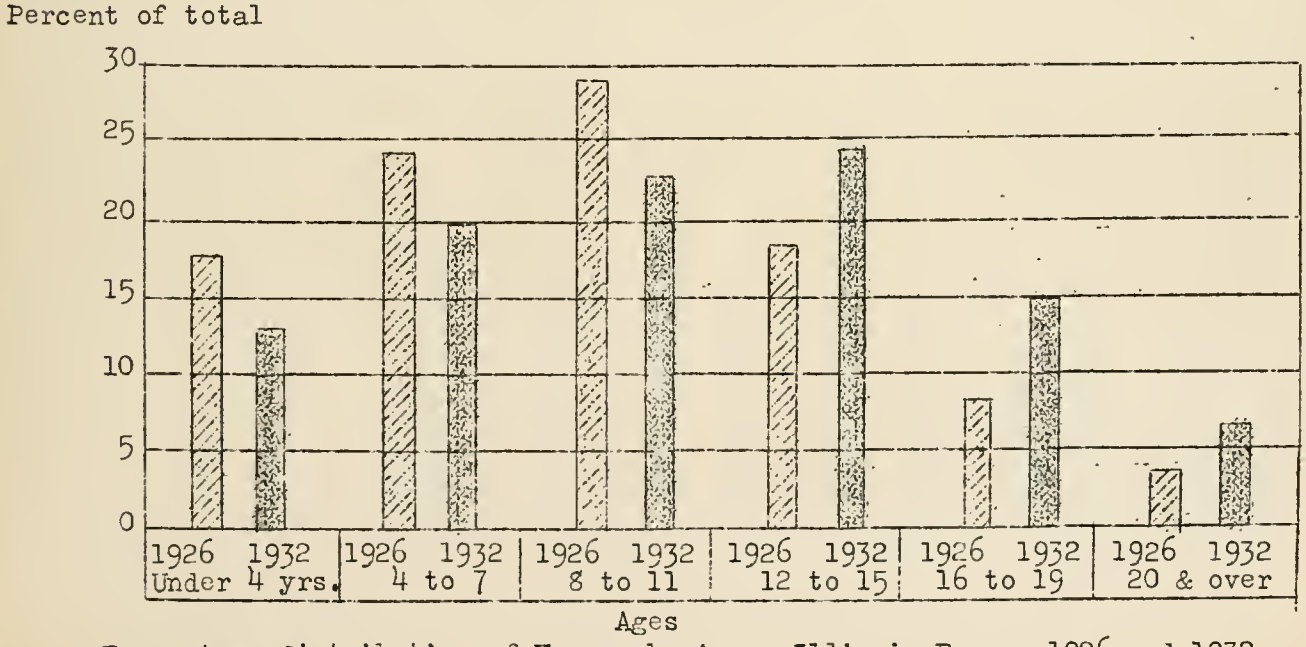
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Scott County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $5 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The decrease in income was entirely in the livestock accounts as the crops income was larger in 1931 than for the year previous.

Comparison of Earnings and Investments on Accounting Farms in Scott County for 1927-1931

Items	1927[1]	1928	1929	1930	1931
Number of farms	29	30	30	30	30
Average size of farms, acres	225	222	207	232	253
Average rate earned, to pay for management, risk and capital	3.6%	6.3%	5.3%	2.7%	-1.3%
Average labor and management wage	$31	$1137	$780	$-70	$-1441
Gross income per acre	18.28	19.91	19.61	14.91	7.25
Operating cost per acre	11.61	10.52	11.79	11.15	8.91
Average value of land per acre	145	110	105	100	95
Total investment per acre	187	148	148	140	128
Investment per farm in:					
Total livestock	2142	2247	2561	2710	2305
Cattle	464	735	870	1172	939
Hogs	955	798	973	852	775
Poultry	140	128	152	164	135
Gross income per farm	4125	4421	4059	3461	1834
Income per farm from:					
Crops	1443	1668	979	311	334
Miscellaneous income	33	75	81	108	64
Total livestock	2649	2678	2999	3042	1436
Cattle	436	535	518	412	240
Dairy sales	216	161	191	136	79
Hogs	1735	1646	1876	2198	947
Poultry	223	275	332	262	158
Average yield of corn in bu.	39	49	47	38	50
Average yield of wheat in bu.	15	16	15	21	25

[1] Records from Morgan County included for 1927.

Investments, Receipts, Expenses, and Earnings on
30 Scott County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		23 957	29 168	21 460
Farm improvements		2 865	2 352	2 902
Livestock total	_____	2 305	1 866	2 478
Horses		392	322	533
Cattle		939	650	1 018
Hogs		775	727	751
Sheep		64	41	42
Poultry		135	126	134
Machinery and equipment		1 420	1 727	1 200
Feed, grain and supplies		1 689	1 633	1 937
Total capital investment	$_____	$32 237	$36 746	$29 977
RECEIPTS AND NET INCREASES				
Livestock total	_____	1 436	1 411	1 281
Horses		---	---	---
Cattle		240	209	74
Hogs		947	964	952
Sheep		12	---	3
Poultry		63	67	45
Egg sales		95	109	97
Dairy sales		79	62	110
Feed, grain and supplies		334	1 382	---
Labor off farm		57	112	49
Miscellaneous receipts		7	7	2
Total receipts & net increases	$_____	$ 1 834	$ 2 912	$ 1 332
EXPENSES AND NET DECREASES				
Farm improvements		170	182	163
Horses		40	42	44
Miscellaneous livestock decreases Sheep		---	4	---
Machinery and equipment		346	411	275
Feed, grain and supplies		---	---	293
Livestock expense		35	45	30
Crop expense		142	170	142
Hired labor		348	317	457
Taxes		430	564	418
Miscellaneous expenses		28	29	27
Total expenses & net decreases	$_____	$ 1 539	$ 1 764	$ 1 849
RECEIPTS LESS EXPENSES	$_____	$ 295	$ 1 148	$ -517
Total unpaid labor		714	758	688
Operator's labor		590	600	600
Family labor		124	158	88
Net income from investment and management		-419	390	-1 205
RATE EARNED ON INVESTMENT	_____%	-1.30%	1.06%	-4.02%
Return to capital and operator's labor and management		171	990	-605
5% of capital invested		1 612	1 837	1 499
LABOR AND MANAGEMENT WAGE	$_____	$-1 441	$ -847	$-2 104

Chart for Studying the Efficiency of Various Parts of Your Business
Scott County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

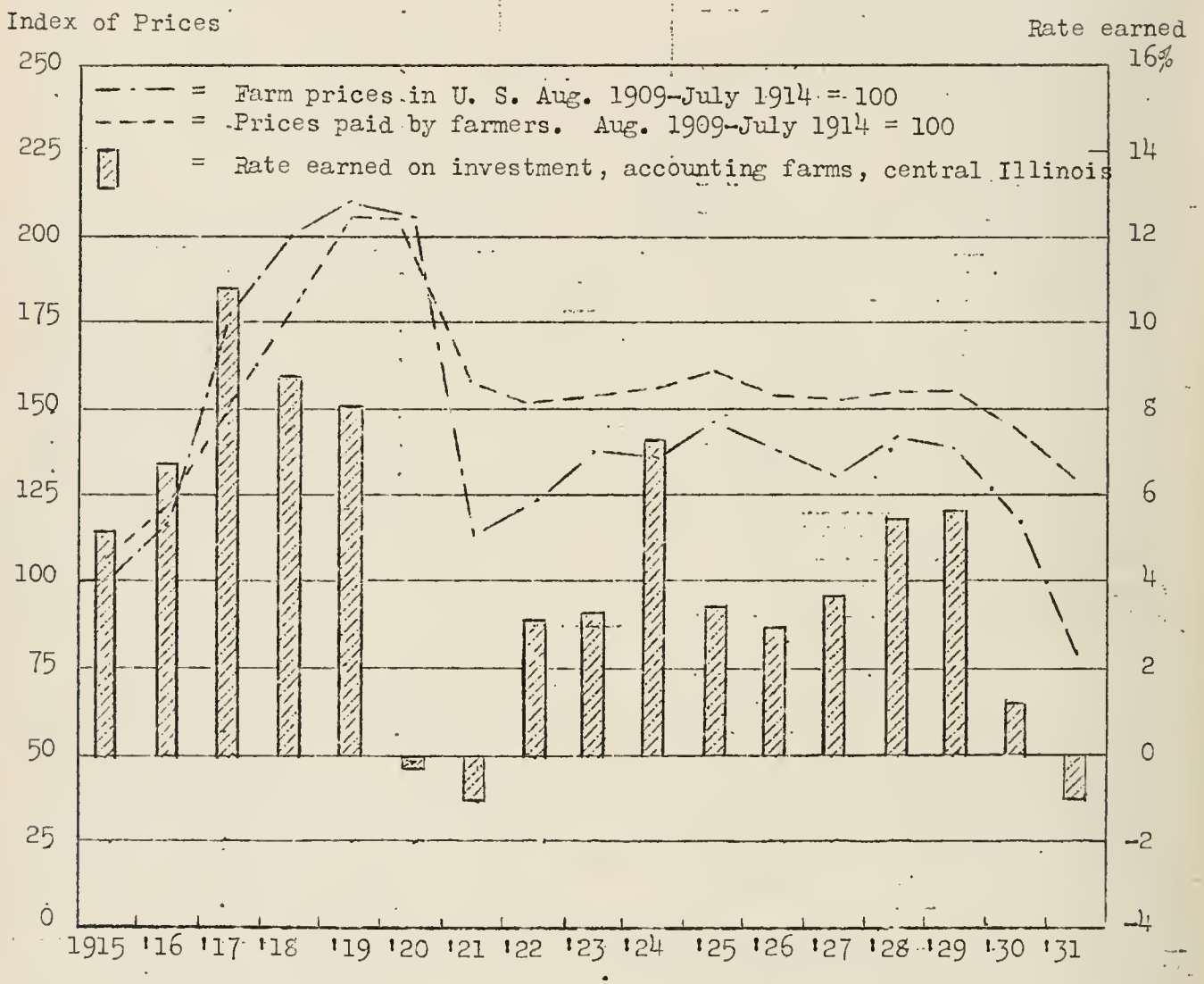
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.7	64	50	39	70	195	90	145	75	14	--	34	90	14	3 900	390
4.7	62	48	37	65	185	85	140	70	13	.30	37	95	13	3 600	370
3.7	60	46	35	60	175	80	135	65	12	.80	40	100	12	3 300	350
2.7	58	44	33	55	165	75	130	60	11	1.30	43	105	11	3 000	330
1.7	56	42	31	50	155	70	125	55	10	1.80	46	110	10	2 700	310
.7	54	40	29	45	145	65	120	50	9	2.30	49	115	9	2 400	290
-.3	52	38	27	40	135	60	115	45	8	2.80	52	120	8	2 100	270
-1.3	50	36	25	35	125	55	110	40	7	3.30	55	125	7	1 800	250
-2.3	48	34	23	30	115	50	105	35	6	3.80	58	130	6	1 500	230
-3.3	46	32	21	25	105	45	100	30	5	4.30	61	135	5	1 200	210
-4.3	44	30	19	20	95	40	95	25	4	4.80	64	140	4	900	190
-5.3	42	28	17	15	85	35	90	20	3	5.30	67	145	3	600	170
-6.3	40	26	15	10	75	30	85	15	2	5.80	70	150	2	300	150
-7.3	38	24	13	5	65	25	80	10	1	6.30	73	155	1	0	130
-8.3	36	22	11	0	55	20	75	5	0	6.80	76	160	0	---	110

Factors Helping to Analyze the Farm Business on
30 Scott County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	____	252.8	303.0	246.5
Percent of land area tillable		81.8	88.3	71.6
Gross receipts per acre	____	7.25	9.61	5.40
Total expenses per acre		8.91	8.32	10.29
Net receipts per acre		-1.66	1.29	-4.89
Value of land per acre		95	96	87
Total investment per acre		128	121	122
Acres in Corn	____	86.5	113.2	80.2
Oats	____	19.4	27.6	8.5
Wheat	____	46.1	74.3	41.5
Soybeans	____	3.5	----	----
Crop yields--Corn, bu. per acre	____	49.7	49.4	51.1
Oats, bu. per acre	____	35.9	41.8	42.2
Wheat, bu. per acre	____	25.3	26.7	24.5
Value of feed fed to productive livestock	____	1 286	1 075	1 422
Returns per $100 of feed fed to productive livestock	____	112	131	90
Returns per $100 invested in:				
Cattle	____	36	41	21
Poultry	____	123	144	113
Pigs weaned per litter	____	5.9	6.5	5.6
Income per litter farrowed	____	54	57	56
Dairy sales per dairy cow	____	40	52	50
Investment in productive livestock per acre	____	6.79	4.78	6.86
Receipts from productive livestock per acre	____	5.68	4.64	5.20
Power and machinery cost per crop acre	____	3.29	2.76	3.53
Machinery cost per crop acre	____	1.95	1.70	1.80
Value of feed fed to horses	____	197	214	221
Man labor cost per $100 gross income	____	55	36	82
Man labor cost per acre	____	3.98	3.42	4.45
Expenses per $100 gross income	____	123	121	190
Farm improvements cost per acre	____	.67	.60	.66
Farms with tractor	____	77%	90%	80%
Excess of sales over cash expenses	____	1 032	934	715
Decrease in inventory	____	737	214 Inc.	1 232

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN GREENE COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. W. Reitz, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Greene county, was lower in 1931 than in 1930. In 1930 the average net income was $905 per farm while in 1931 there was an average loss of $1070 per farm. In 1930, however, $865 per farm was deducted for the labor of the operator and the family as compared with $741 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per farm in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2401 in excess of cash expenses as compared with $1316 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*R. H. Clanahan, farm adviser in Greene County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Greene County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$2 803	$2 465	
Feed, grain and supplies	2 385	1 388	
Machinery	1 827	1 624	
Improvements	4 626	4 519	
Total inventory	11 641	9 996	
Decrease in inventory			$1 645
Total cash sales for 1931			$4 542
Total cash purchases for 1931			3 226
Excess of cash sales over cash purchases			1 316
Decrease in inventory			1 645
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)			329

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent the average farm conditions in Greene County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 107 to 483 acres per farm. Only one was smaller than 140 acres and 4 were larger than 340 acres. The average size for all farms in the group was 252 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
100 - 139	1	300 - 339	4
140 - 179	4	340 - 379	3
180 - 219	5	380 - 419	0
220 - 259	7	420 - 459	0
260 - 299	5	460 - 499	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land was $30 to $89 per acre on 12 farms; $90 to $149 on 14 farms, and $150 to $209 on 4 farms. The average value was $99 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $146 per acre.

As previously stated, the average for all farms indicated a loss of $1070 per farm after deducting $741 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $2359 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $249; while the operators of 13 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$ 749 to 250	4	$-1 250 to -1 749	6
249 to -249	2	-1 750 to -2 249	3
-250 to -749	5	-2 250 to -2 749	2
-750 to -1 249	6	-2 750 to -3 249	2

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 260 acres in size as compared with 252 for the less profitable group. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 3.9 bushels more corn, 1.4 bushels more oats, and 1.3 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $952 per farm less than the beginning inventory, while on the less profitable farms it was $1626 less than the beginning.

The investment per farm in livestock was $526 more on the most profitable farms than on the least profitable and the income was $1153 per farm higher while at the same time the decrease from the feed and grain account was smaller by $689. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $135 for the more profitable farms as compared with $93 for the less profitable farms. There were 6.4 pigs weaned per litter on the more profitable farms but only 6.0 on the less profitable farms. Dairy sales were $19 per cow higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $13.83 as compared with $9.39 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $14.22 as compared with $17.16 for the least profitable group. The cost of power and machinery was $.14 per crop acre lower for the more successful farms, and the man labor cost was 43 cents an acre lower. The less profitable farms had a loss of $1616 per farm in the feed and grain account, whereas the more profitable farms had a loss of $927 from this source.

After deducting expenses and net decreases from income and net increases there remained a net loss of $.39 per acre for the more profitable farms as compared with a loss of $7.77 per acre for the less profitable group. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and feed accounts.

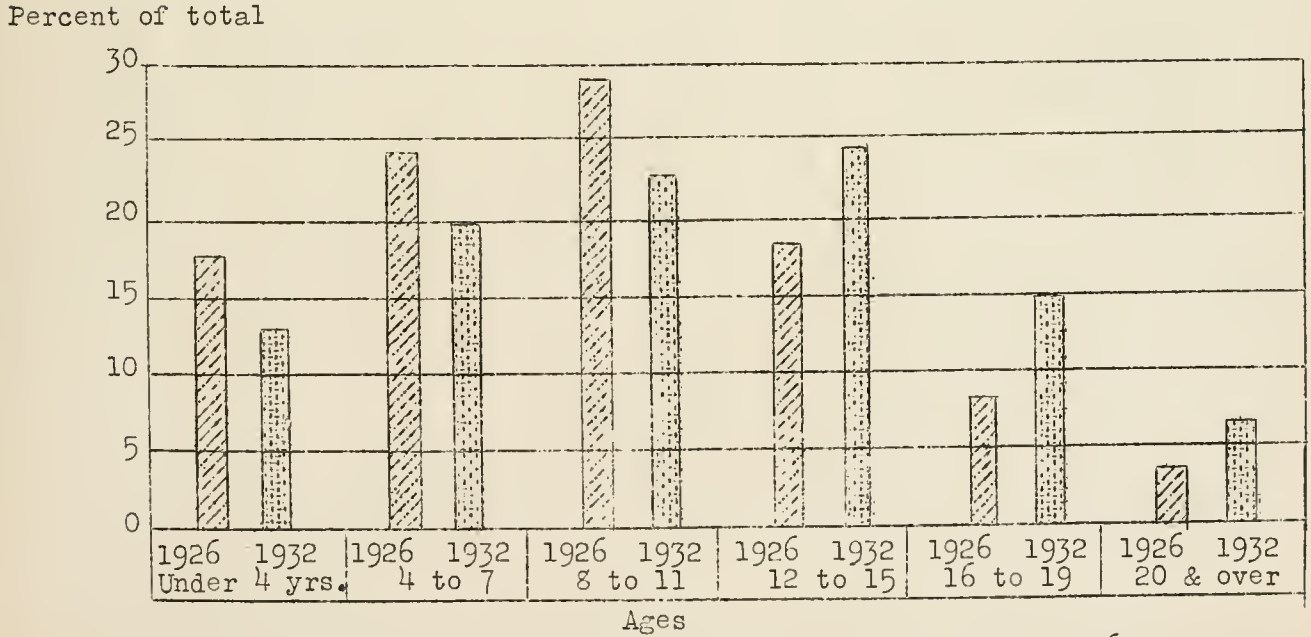
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Greene County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931, although the average land value was $8 per acre higher in 1930. The gross income was lower in 1931 than in 1930 but the expense per acre was higher, due to the decrease in the feed and grain account.

Comparison of Earnings and Investments on Accounting Farms in Greene County for 1927-1931

Items	1927	1928	1929	1930[1]	1931
Number of farms	28	38	38	30	30
Average size of farms, acres	215	204	198	236	282
Average rate earned, to pay for management, risk and capital	3.9%	6.0%	5.4%	2.5%	-2.9%
Average labor and management wage	$176	$877	$804	$-290	$-2359
Gross income per acre	18.95	23.26	22.52	16.09	10.22
Operating cost per acre	13.00	13.48	13.83	12.25	14.47
Average value of land per acre	106	113	108	107	99
Total investment per acre	153	164	160	156	146
Investment per farm in:					
Total livestock	2819	2778	2741	3203	2803
Cattle	1292	1465	1368	1694	1188
Hogs	756	648	627	783	953
Poultry	166	144	135	144	106
Gross income per farm	4074	4746	4458	3790	2573
Income per farm from:					
Crops	554	1014	455	102	--
Miscellaneous income	92	99	134	120	65
Total livestock	3428	3633	3869	3568	2508
Cattle	951	772	577	267	114
Dairy sales	629	906	887	937	613
Hogs	1456	1549	2003	2132	1614
Poultry	326	320	330	203	142
Average yield of corn in bu.	38	46	44	35	39
Average yield of wheat in bu.	12	16	15	20	26

1/ Records from Jersey County included for 1930.

Investments, Receipts, Expenses, and Earnings on
30 Greene County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		25 010	25 210	26 226
Farm improvements		4 626	5 356	4 011
Livestock total	____	2 803	3 301	2 775
Horses		473	560	464
Cattle		1 188	1 558	912
Hogs		953	1 012	1 164
Sheep		83	76	102
Poultry		106	95	133
Machinery and equipment		1 827	2 598	1 507
Feed, grain and supplies		2 385	2 733	2 928
Total capital investment	$____	$36 651	$39 198	$37 447
RECEIPTS AND NET INCREASES				
Livestock total	____	2 508	3 492	2 339
Horses		--	--	--
Cattle		114	335	--
Hogs		1 614	1 902	1 764
Sheep		25	38	30
Poultry		68	64	94
Egg sales		74	60	112
Dairy sales		613	1 093	339
Feed, grain and supplies		--	--	--
Labor off farm		58	88	28
Miscellaneous receipts		7	15	4
Total receipts & net increases	$____	$2 573	$3 595	$2 371
EXPENSES AND NET DECREASES				
Farm improvements		244	329	204
Horses		39	38	73
Miscellaneous livestock decreases Cattle		--	--	19
Machinery and equipment		405	460	438
Feed, grain and supplies		1 003	927	1 616
Livestock expense		73	84	76
Crop expense		206	206	216
Hired labor		568	594	419
Taxes		330	354	319
Miscellaneous expenses		34	31	33
Total expenses & net decreases	$____	$2 902	$3 023	$3 413
RECEIPTS LESS EXPENSES	$____	$ -329	$ 572	$-1 042
Total unpaid labor		741	675	918
Operator's labor		544	555	580
Family labor		197	120	338
Net income from investment and management		-1 070	- 103	-1 960
RATE EARNED ON INVESTMENT	____%	-2.92 %	-.26 %	-5.23 %
Return to capital and operator's labor and management		-526	452	-1 380
5% of capital invested		1 833	1 960	1 872
LABOR AND MANAGEMENT WAGE	$____	$-2 359	$-1 508	$-3 252

Chart for Studying the Efficiency of Various Parts of Your Business
Greene County, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

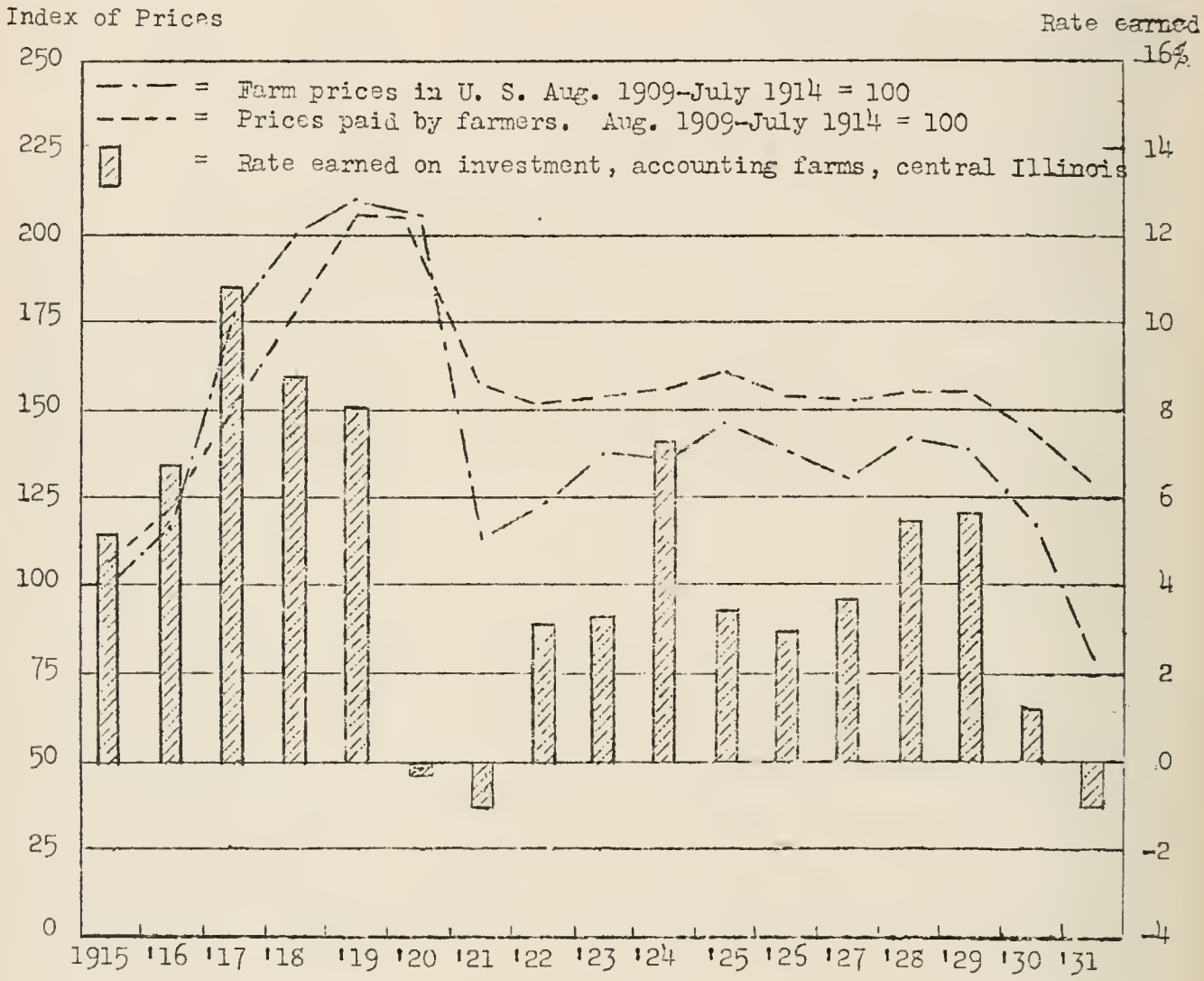
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
4.0	53	54	40	130	215	90	150	140	16	.38	15	70	17	4 600	390
3.0	51	52	38	120	205	85	145	130	15	.88	20	80	16	4 300	370
2.0	49	50	36	110	195	80	140	120	14	1.38	25	90	15	4 000	350
1.0	47	48	34	100	185	75	135	110	13	1.88	30	100	14	3 700	330
.0	45	46	32	90	175	70	130	100	12	2.38	35	110	13	3 400	310
-1.0	43	44	30	80	165	65	125	90	11	2.88	40	120	12	3 100	290
-2.0	41	42	28	70	155	60	120	80	10	3.38	45	130	11	2 800	270
-3.0	39	40	26	60	145	55	115	70	9	3.88	50	140	10	2 500	250
-4.0	37	38	24	50	135	50	110	60	8	4.38	55	150	9	2 200	230
-5.0	35	36	22	40	125	45	105	50	7	4.88	60	160	8	1 900	210
-6.0	33	34	20	30	115	40	100	40	6	5.38	65	170	7	1 600	190
-7.0	31	32	18	20	105	35	95	30	5	5.88	70	180	6	1 300	170
-8.0	29	30	16	10	95	30	90	20	4	6.38	75	190	5	1 000	150
-9.0	27	28	14	0	85	25	85	10	3	6.88	80	200	4	700	130
-10.0	25	26	12	--	75	20	80	0	2	7.38	85	210	3	400	110

Factors Helping to Analyze the Farm Business on
30 Greene County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	____	251.7	260.0	252.4
Percent of land area tillable		76.7	79.8	78.4
Gross receipts per acre	____	10.22	13.83	9.39
Total expenses per acre		14.47	14.22	17.16
Net receipts per acre		-4.25	- .39	-7.77
Value of land per acre		99	97	104
Total investment per acre		146	151	148
Acres in Corn	____	83.8	85.0	92.6
Oats	____	20.4	14.8	21.0
Wheat	____	35.8	45.6	36.1
Soybeans	____	3.9	3.8	6.2
Crop yields--Corn, bu. per acre	____	39.0	41.5	37.6
Oats, bu. per acre	____	39.8	45.3	43.9
Wheat, bu. per acre	____	26.4	27.1	25.8
Value of feed fed to productive livestock	____	2 215	2 590	2 498
Returns per $100 of feed fed to productive livestock	____	113	135	93
Returns per $100 invested in:				
Cattle	____	62	86	36
Poultry	____	146	139	176
Pigs weaned per litter	____	6.3	6.4	6.0
Income per litter farrowed	____	56	53	53
Dairy sales per dairy cow	____	68	75	56
Investment in productive livestock per acre	____	8.67	10.50	8.32
Receipts from productive livestock per acre	____	9.96	13.43	9.19
Power and machinery cost per crop acre	____	3.88	3.99	4.13
Machinery cost per crop acre	____	2.43	2.65	2.49
Value of feed fed to horses	____	202	193	216
Man labor cost per $100 gross income	____	49	34	55
Man labor cost per acre	____	4.97	4.76	5.19
Expenses per $100 gross income	____	142	103	183
Farm improvements cost per acre	____	.97	1.27	.81
Farms with tractor	____	70%	80%	80%
Excess of sales over cash expenses	____	1 316	2 121	1 260
Decrease in inventory	____	1 645	1 549	2 302

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-THREE FARMS IN JERSEY COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. W. Reitz and H. C. M. Case*

The average of farm earnings, on account keeping farms in Jersey County, was lower in 1931 than in 1930. In 1930 the average net income was $773 per farm while in 1931 there was an average loss of $562 per farm. In 1930, however, $874 per farm was deducted for the labor of the operator and the family as compared with $790 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $1845 in excess of cash expenses as compared with $1328 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*C. T. Kibler, farm adviser in Jersey County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Jersey County farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 092		$1 528
Feed, grain and supplies	1 478		1 138
Machinery	1 552		1 465
Improvements	3 005		2 896
Total inventory	8 127		7 027
Decrease in inventory		$1 100	
Total cash sales for 1931		2 947	
Total cash purchases for 1931		1 619	
Excess of cash sales over cash purchases		1 328	
Decrease in inventory		1 100	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		228	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand, at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930 and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Jersey County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 33 farms included in this study ranged in size from 80 to 530 acres per farm. Only 3 were smaller than 100 acres and 5 were larger than 300 acres. The average size for all farms in the group was 204 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	3	300 - 339	3
100 - 139	6	340 - 379	1
140 - 179	7	380 - 419	0
180 - 219	3	420 - 459	0
220 - 259	7	460 - 499	0
260 - 299	2	500 - 539	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 33 farms included in the present study, the value of bare land per acre was $30 to $69 on 9 farms; $70 to $109 on 18 farms, and $110 to $169 on 6 farms. The average value was $86 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $126 per acre.

As previously stated, the average for all farms indicated a loss of $562 per farm after deducting $790 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1272 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $249; while the operators of 3 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farm
$1 749 to $1 250	1	$- 750 to -1 249	10
1 249 to 750	1	-1 250 to -1 749	1
749 to 250	2	-1 750 to -2 249	1
249 to - 249	5	-2 250 to -2 749	0
- 250 - 749	11	-2 750 to -3 249	1

A comparison of the 11 farms having the highest rate earned on investment with the 11 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 216 acres in size as compared with 154 for the less profitable group. The larger farms had a lower percentage of the land area tillable and also a lower value per acre for the bare land. The more profitable farms grew 62 acres of wheat per farm as compared with 23 acres on the less profitable farms. The most profitable farms grew 5.3 bushels more corn, 5.6 bushels more oats, and 4.9 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $31 per farm higher than the beginning inventory, while on the less profitable farms it was $596 less than the beginning.

The investment per farm in livestock was $473 more on the most profitable farms than on the least profitable and the income was $703 per farm higher, while at the same time the increase from the feed and grain account was larger by $715. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $153 for the more profitable farms as compared with $106 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 6.3 pigs weaned per litter on the more profitable farms but only 6.1 on the less profitable farms. Dairy sales were $27 per cow higher and returns per $100 invested in poultry $91 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.79 as compared with $8.08 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $9.81 as compared with $14.51 for the least profitable group. The cost of power and machinery was $.97 per crop acre lower for the more successful farms, and the man labor cost was $1.29 an acre lower. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $385 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $.98 per acre for the more profitable farms as compared with a loss of $6.43 per acre for the less profitable group. For the first group this was a return of .90% on the capital invested in the business and for the second group a loss of 4.57%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor, feed and improvements accounts.

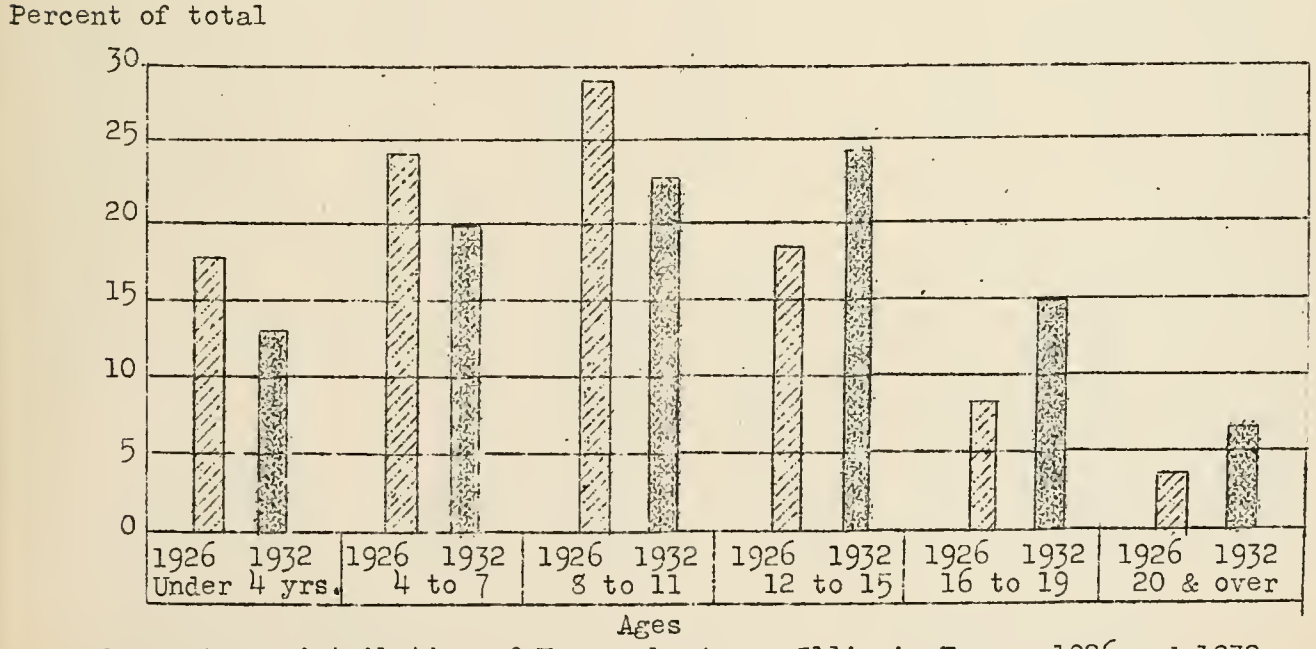
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Jersey County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The income from crops was lower in 1931 in spite of the better crop yields.

Comparison of Earnings and Investments on Accounting Farms in Jersey County for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930[2]	1931
Number of farms	28	38	38	28	33
Average size of farms, acres	215	204	198	207	204
Average rate earned, to pay for management, risk and capital	3.9%	6.0%	5.4%	2.8%	-2.2%
Average labor and management wage	$176	$877	$804	$ 3	$-1272
Gross income per acre	18.95	23.26	22.52	15.00	7.35
Operating cost per acre	13.00	13.48	13.83	11.27	10.11
Average value of land per acre	106	113	108	89	86
Total investment per acre	153	164	160	134	126
Investment per farm in:					
Total livestock	2819	2778	2741	2520	2092
Cattle	1292	1465	1368	1211	921
Hogs	756	648	627	598	562
Poultry	166	144	135	151	125
Gross income per farm	4074	4746	4458	3109	1499
Income per farm from:					
Crops	554	1014	455	434	25
Miscellaneous income	92	99	134	67	47
Total livestock	3428	3633	3869	2608	1427
Cattle	951	772	577	254	--
Dairy sales	629	906	871	797	473
Hogs	1456	1549	2003	1290	787
Poultry	326	320	330	250	162
Average yield of corn in bu.	38	46	44	29	35
Average yield of wheat in bu.	12	16	15	17	26

1/ Records from Greene County included for 1927-1929.

2/ Records from Macoupin County included for 1930.

Investments, Receipts, Expenses, and Earnings on
33 Jersey County Farms, 1931

Items	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farms
CAPITAL INVESTMENTS				
Land		17 499	15 699	14 331
Farm improvements		3 005	2 924	2 834
Livestock total	____	2 092	2 124	1 651
Horses		459	434	402
Cattle		921	839	605
Hogs		562	727	456
Sheep		25	12	49
Poultry		125	112	139
Machinery and equipment		1 552	1 534	1 376
Feed, grain and supplies		1 478	1 248	1 548
Total capital investment	$____	$25 626	$23 529	$21 740
RECEIPTS AND NET INCREASES				
Livestock total	____	1 427	1 929	1 226
Horses		---	---	---
Cattle		---	---	52
Hogs		787	1 076	732
Sheep		5	10	---
Poultry		60	116	49
Egg sales		102	144	115
Dairy sales		473	583	278
Feed, grain and supplies		25	330	---
Labor off farm		46	68	22
Miscellaneous receipts		1	1	---
Total receipts & net increases	$____	$1 499	$2 328	$1 248
EXPENSES AND NET DECREASES				
Farm improvements		181	168	201
Horses		32	28	21
Miscellaneous livestock decreases: Sheep		--	--	1
Miscellaneous livestock decreases: Cattle		15	3	--
Machinery and equipment		335	381	315
Feed, grain and supplies		--	--	385
Livestock expense		36	39	27
Crop expense		178	211	144
Hired labor		224	306	152
Taxes		244	241	201
Miscellaneous expenses		26	22	25
Total expenses & net decreases	$____	$1 271	$1 399	$1 472
RECEIPTS LESS EXPENSES	$____	$ 228	$ 929	$ -224
Total unpaid labor		790	717	769
Operator's labor		571	586	595
Family labor		219	131	174
Net income from investment and management		-562	212	-993
RATE EARNED ON INVESTMENT	____%	-2.19%	0.90%	-4.57%
Return to capital and operator's labor and management		9	798	-398
5% of capital invested		1 281	1 176	1 087
LABOR AND MANAGEMENT WAGE	$____	$-1 272	$- 378	$-1 485

Chart for Studying the Efficiency of Various Parts of Your Business
Jersey County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 33 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

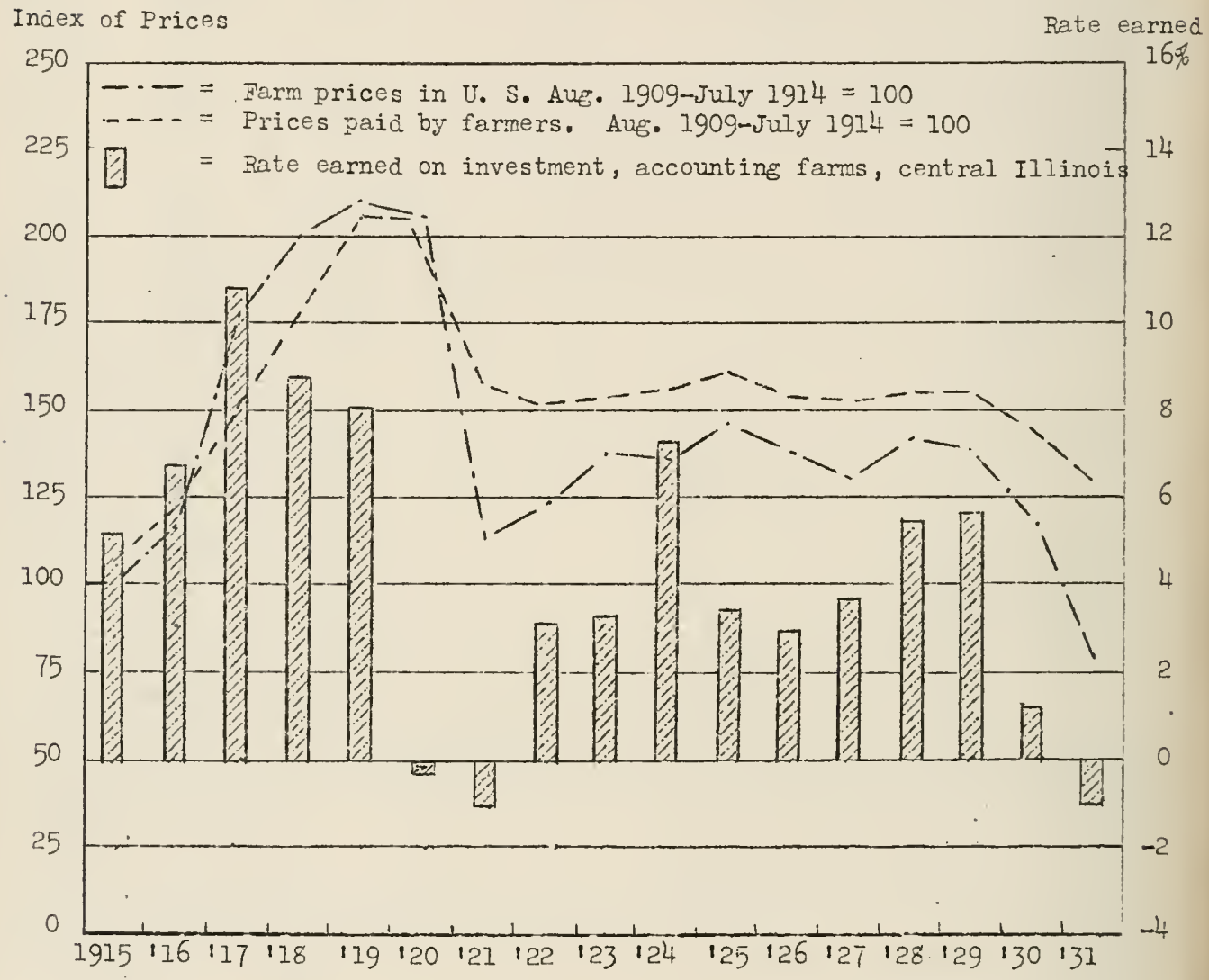
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
4.8	49	57	40	95	205	90	160	105	14	.09	44	100	14	2 900	340
3.8	47	55	38	90	195	85	155	100	13	.59	47	105	13	2 700	320
2.8	45	53	36	85	185	80	150	95	12	1.09	50	110	12	2 500	300
1.8	43	51	34	80	175	75	145	90	11	1.59	53	115	11	2 300	280
.8	41	49	32	75	165	70	140	85	10	2.09	56	120	10	2 100	260
-.2	39	47	30	70	155	65	135	80	9	2.59	59	125	9	1 900	240
-1.2	37	45	28	65	145	60	130	75	8	3.09	62	130	8	1 700	220
-2.2	35	43	26	60	135	55	125	70	7	3.59	65	135	7	1 500	200
-3.2	33	41	24	55	125	50	120	65	6	4.09	68	140	6	1 300	180
-4.2	31	39	22	50	115	45	115	60	5	4.59	71	145	5	1 100	160
-5.2	29	37	20	45	105	40	110	55	4	5.09	74	150	4	900	140
-6.2	27	35	18	40	95	35	105	50	3	5.59	77	155	3	700	120
-7.2	25	33	16	35	85	30	100	45	2	6.09	80	160	2	500	100
-8.2	23	31	14	30	75	25	95	40	1	6.59	83	165	1	300	80
-9.2	21	29	12	25	65	20	90	35	0	7.09	86	170	0	100	60

Factors Helping to Analyze the Farm Business on
33 Jersey County Farms in 1931

Item	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farm
Size of farm--acres	____	203.8	216.0	154.5
Percent of land area tillable		86.1	85.1	87.5
Gross receipts per acre	____	7.35	10.79	8.08
Total expenses per acre		10.11	9.81	14.51
Net receipts per acre		-2.76	.98	-6.43
Value of land per acre		86	73	93
Total investment per acre		126	109	141
Acres in Corn	____	65.7	61.8	53.8
Oats	____	18.4	17.5	17.0
Wheat	____	46.9	62.3	23.2
Soybeans	____	5.2	3.8	3.7
Crop yields--Corn, bu. per acre	____	35.1	39.7	34.4
Oats, bu. per acre	____	42.8	46.7	41.1
Wheat, bu. per acre	____	26.2	27.5	22.6
Value of feed fed to productive livestock	____	1 122	1 258	1 154
Returns per $100 of feed fed to productive livestock	____	126	153	106
Returns per $100 invested in:				
Cattle	____	58	80	55
Poultry	____	137	221	130
Pigs weaned per litter	____	6.2	6.3	6.1
Income per litter farrowed	____	57	63	59
Dairy sales per dairy cow	____	68	78	51
Investment in productive livestock per acre	____	6.75	6.55	7.38
Receipts from productive livestock per acre	____	6.93	8.92	7.93
Power and machinery cost per crop acre	____	3.59	3.52	4.49
Machinery cost per crop acre	____	2.20	2.34	2.81
Value of feed fed to horses	____	181	165	169
Man labor cost per $100 gross income	____	65	42	72
Man labor cost per acre	____	4.75	4.53	5.82
Expenses per $100 gross income	____	137	91	180
Farm improvements cost per acre	____	.89	.78	1.30
Farms with tractor	____	55%	64%	45%
Excess of sales over cash expenses	____	1 328	1 576	873
Decrease in inventory	____	1 100	647	1 097

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON FORTY-THREE FARMS IN PIKE, CASS AND BROWN COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright and H. C. M. Case*

The average of farm earnings, on account keeping farms in Pike, Cass and Brown Counties, was lower in 1931 than in 1930. In 1930 the average net income was $738 per farm while in 1931 there was an average loss of $634 per farm. In 1930, however, $866 per farm was deducted for the labor of the operator and the family as compared with $748 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per farm in 1930 and $600 per year in 1931. In 1930 the average farm had cash sales of $2119 in excess of cash expenses as compared with $1573 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in the earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*W. B. Bunn, G. H. Husted and W. E. Foard, farm advisers in Pike, Cass and Brown Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 43 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$2 870	$2 209	
Feed, grain and supplies	1 848	1 225	
Machinery	1 214	1 120	
Improvements	3 743	3 662	
Total inventory	9 675	8 216	
Decrease in inventory			$1 459
Total cash sales for 1931			$3 554
Total cash purchases for 1931			1 981
Excess of cash sales over cash purchases			1 573
Decrease in inventory			1 459
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			114

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family received foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Pike, Cass and Brown Counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected

areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 43 farms included in this study ranged in size from 72 to 460 acres per farm. Seven were smaller than 140 acres and 4 were larger than 340 acres. The average size for all farms in the group was 218 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	3	300 - 339	4
100 - 139	4	340 - 379	1
140 - 179	11	380 - 419	1
180 - 219	4	420 - 459	1
220 - 259	8	460 - 499	1
260 - 299	5		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 43 farms included in the present study, the value of bare land per acre was $10 to $69 per acre on 12 farms; $70 to $129 on 20 farms, and $130 to $169 on 10 farms; one farm was valued at $200 while the average value was $93 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $137 per acre.

As previously stated, the average for all farms indicated a loss of $634 per farm after deducting $748 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1544 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249; while the operators of 8 farms sustained losses of more than $1249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms1/	Net income per farm	Number of farms
$749 to 250	2	- 750 to -1 249	10
249 to -249	8	-1 250 to -1 749	6
-250 to -749	14	-1 750 to -2 249	2

1/ One farm had a net income of $2261.

A comparison of the 14 farms having the highest rate earned on investment with the 14 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 240 acres in size as compared with 206 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The more profitable farms grew more acres of corn and wheat than the less profitable farms but there was not much difference in the yield per acre. The most profitable farms grew 1.9 bushels less corn, 2.3 bushels more oats, amd 2.0 bushels more wheat per acre than did the least profitable farms.

The investment per farm in livestock was $1379 mae on the most profitable farms than on the least profitable and the income was $1501 per farm higher while at the same time the decrease from the feed and grain account was smaller by $189. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $152 for the more profitable farms as compared with $97 for the less profitable farms. There were 6.5 pigs weaned per litter on the more profitable farms and 6.3 on the less profitable farms. Dairy sales were $41 per cow higher and returns per $100 invested in poultry $53 higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $12.57 as compared with $7.37 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed but little difference. The average expense per acre for the most profitable farms was $12.34 as compared with $13.03 for the least profitable group. The cost of power and machinery was 19 cents per crop acre lower for the more successful farms, but the man labor cost was 38 cents an acre higher. The expense per acre for improvements was also lower for the more profitable farms. The less profitable farms had a loss of $866 per farm in the feed and grain account, whereas the more profitable farms had loss from this source of $677 per farm.

After deducting expenses and net decreases from income and net increases there remained a net increase of 23 cents per acre for the more profitable farms as compared with a loss of $5.66 per acre for the less profitable group. For the first group this was a return of .16% on the capital invested in the business and for the second group a loss of 5.05%. The higher income per acre on the more profitable farms was due largely to amount and efficiency of the productive livestock.

The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

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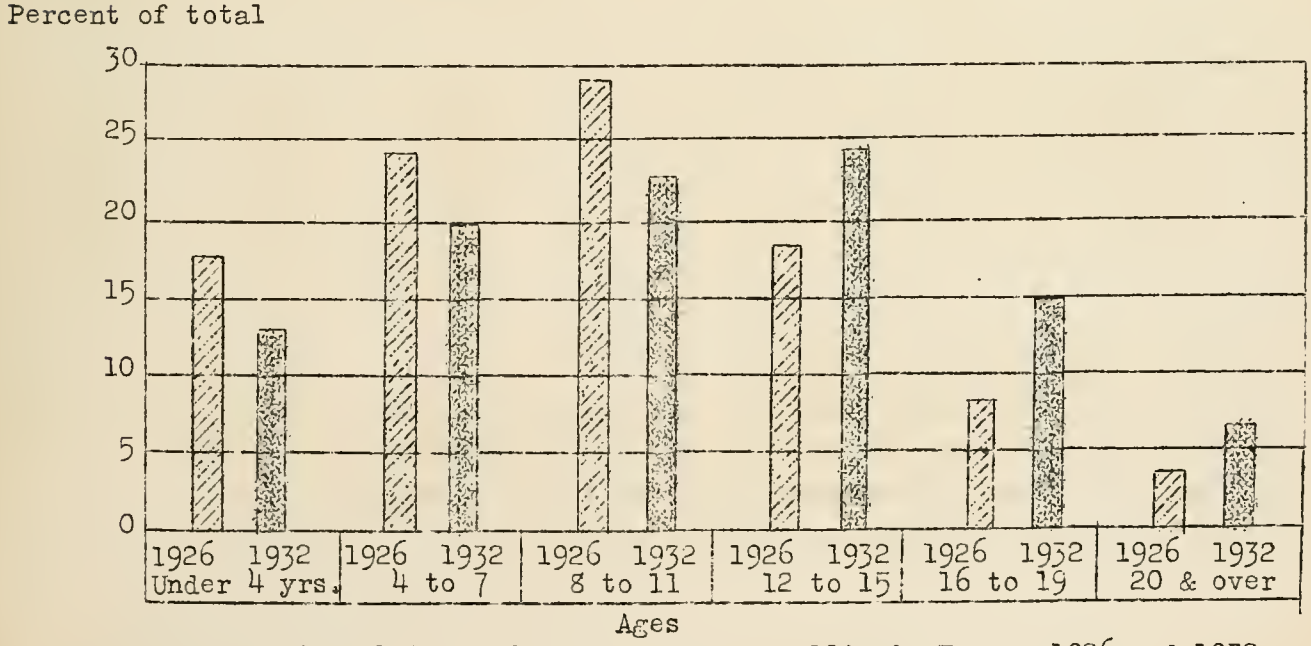


Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in Pike, Cass and Brown Counties for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 although the average land value was $12 per acre higher in 1930. Both the gross income and the operating cost per acre were lower in 1931 than in 1930.

Comparison of Earnings and Investments on Accounting Farms in Pike, Cass and Brown Counties, for 1928-1931

Items	1928[1]	1929[2]	1930[3]	1931
Number of farms	62	52	52	43
Average size of farms, acres	240	267	244	218
Average rate earned, to pay for management, risk and capital	5.3%	6.0%	2.0%	-2.1%
Average labor and management wage	$792	$1116	$-446	$-1544
Gross income per acre	20.49	19.03	16.21	9.43
Operating cost per acre	11.32	10.07	13.18	12.34
Average value of land per acre	128	106	105	93
Total investment per acre	174	149	153	137
Investment per farm in:				
Total livestock	2923	2950	3804	2870
Cattle	1214	1252	1942	1363
Hogs	963	889	1044	845
Poultry	124	138	153	120
Gross income per farm	4923	5080	3947	2056
Income per farm from:				
Crops	1184	1295	---	---
Miscellaneous income	74	59	64	47
Total livestock	3665	3726	3883	2009
Cattle	1038	724	680	415
Dairy sales	222	301	302	211
Hogs	2117	2353	2654	1211
Poultry	239	301	218	152
Average yield of corn in bu.	48	43	33	42
Average yield of oats in bu.	38	36	29	36

1/Records from Morgan, Mason, and Menard counties included for 1928.

2/Records from Mason, and Menard counties included for 1929.

3/Records from Menard county included for 1930.

Investments, Receipts, Expenses, and Earnings on
43 Pike, Cass and Brown County Farms, 1931

Items	Your farm	Average of 43 farms	14 most profitable farms	14 least profitable farms
CAPITAL INVESTMENTS				
Land		20 235	22 898	14 076
Farm improvements		3 743	4 179	3 624
Livestock total	_____	2 870	3 947	2 568
Horses		416	410	489
Cattle		1 363	2 437	1 151
Hogs		845	972	695
Sheep		126	34	102
Poultry		120	94	131
Machinery and equipment		1 214	1 313	1 178
Feed, grain and supplies		1 848	1 864	1 701
Total capital investment	$_____	$29 910	$34 201	$23 147
RECEIPTS AND NET INCREASES				
Livestock total	_____	2 009	2 966	1 465
Horses		---	---	---
Cattle		415	953	283
Hogs		1 211	1 432	870
Sheep		20	10	21
Poultry		43	45	37
Egg sales		109	123	106
Dairy sales		211	403	148
Feed, grain and supplies		---	---	---
Labor off farm		36	20	53
Miscellaneous receipts		11	29	5
Total receipts & net increases	$_____	$ 2 056	$ 3 015	$ 1 523
EXPENSES AND NET DECREASES				
Farm improvements	$_____	$ 206	$ 184	$ 204
Horses		39	56	32
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		313	379	265
Feed, grain and supplies		648	677	866
Livestock expense		48	56	31
Crop expense		157	190	126
Hired labor		221	320	133
Taxes		283	298	238
Miscellaneous expenses		27	29	31
Total expenses & net decreases	$_____	$ 1 942	$ 2 189	$ 1 926
RECEIPTS LESS EXPENSES	$_____	$ 114	$ 826	$ -403
Total unpaid labor		748	772	765
Operator's labor		586	600	600
Family labor		162	172	165
Net income from investment and management		-634	54	-1 168
RATE EARNED ON INVESTMENT	_____%	-2.12%	.16%	-5.05%
Return to capital and operator's labor and management		-48	654	-568
5% of capital invested		1 496	1 710	1 157
LABOR AND MANAGEMENT WAGE	$_____	$-1 544	$-1 056	$-1 725

Chart for Studying the Efficiency of Various Parts of Your Business
Pike, Cass and Brown Counties 1931

The numbers between the lines across the middle of the page are the approximate averages for the 43 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

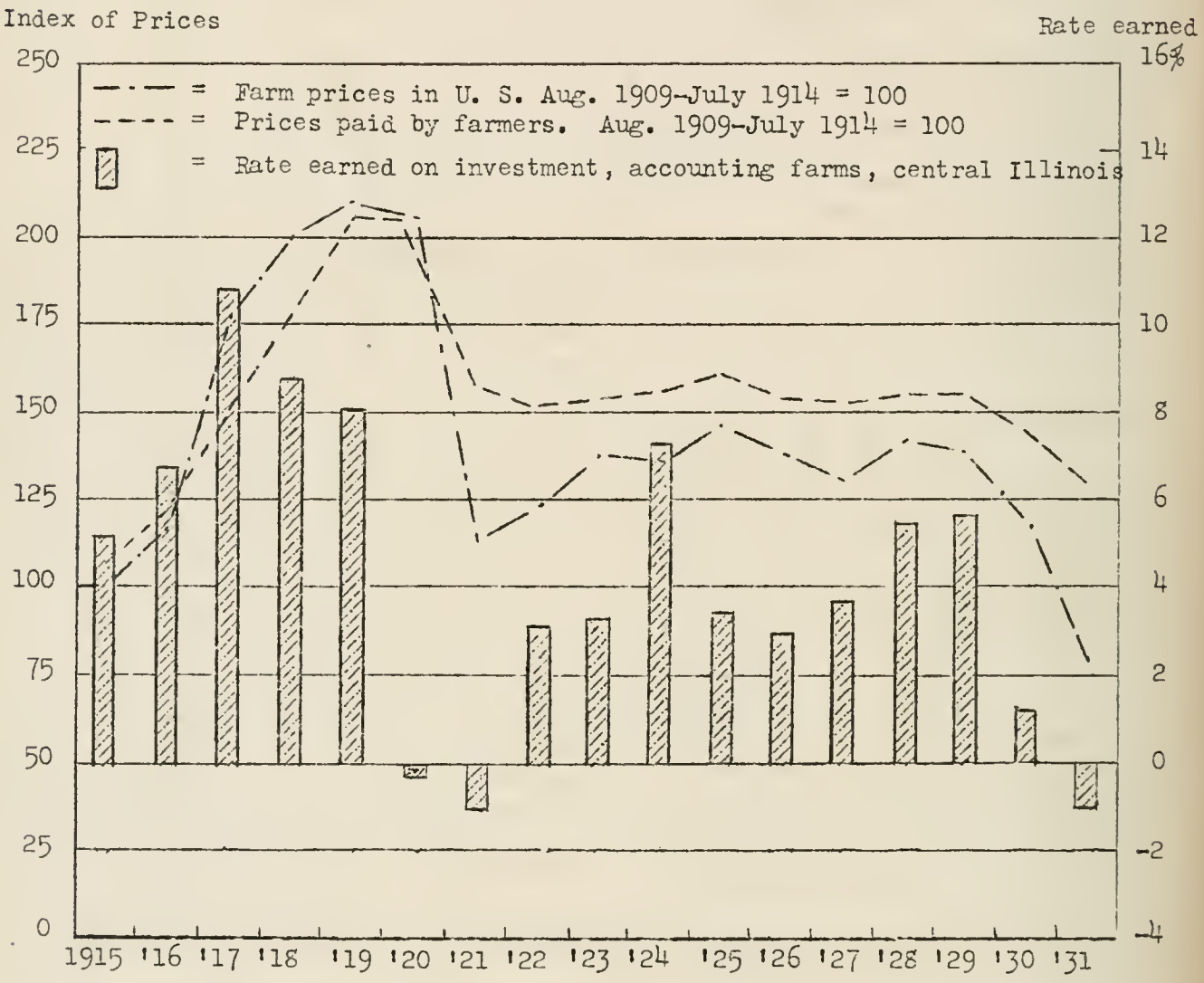
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
5.0	56	50	38	85	205	90	160	85	17	.50	24	95	16	4 900	360
4.0	54	48	36	80	195	85	155	80	16	1.00	27	100	15	4 500	340
3.0	52	46	34	75	185	80	150	75	15	1.50	30	105	14	4 100	320
2.0	50	44	32	70	175	75	145	70	14	2.00	33	110	13	3 700	300
1.0	48	42	30	65	165	70	140	65	13	2.50	36	115	12	3 300	280
0.0	46	40	28	60	155	65	135	60	12	3.00	39	120	11	2 900	260
-1.0	44	38	26	55	145	60	130	55	11	3.50	42	125	10	2 500	240
-2.0	42	36	24	50	135	55	125	50	10	4.00	45	130	9	2 100	220
-3.0	40	34	22	45	125	50	120	45	9	4.50	48	135	8	1 700	200
-4.0	38	32	20	40	115	45	115	40	8	5.00	51	140	7	1 300	180
-5.0	36	30	18	35	105	40	110	35	7	5.50	54	145	6	900	160
-6.0	34	28	16	30	95	35	105	30	6	6.00	57	150	5	500	140
-7.0	32	26	14	25	85	30	100	25	5	6.50	60	155	4	100	120
-8.0	30	24	12	20	75	25	95	20	4	7.00	63	160	3	---	100
-9.0	28	22	10	15	65	20	90	15	3	7.50	66	165	2	---	80

Factors Helping to Analyze the Farm Business on
43 Pike, Cass and Brown County Farms in 1931

Items	Your farm	Average of 43 farms	14 most profitable farms	14 least profitable farms
Size of farm—acres		217.9	239.9	206.5
Percent of land area tillable		78.3	80.0	73.2
Gross receipts per acre		9.43	12.57	7.37
Total expenses per acre		12.34	12.34	13.03
Net receipts per acre		-2.91	.23	-5.66
Value of land per acre		93	95	68
Total investment per acre		137	143	112
Acres in Corn		64.4	73.7	47.7
Oats		20.6	18.1	18.2
Wheat		26.2	31.6	15.6
Barley		3.1	2.9	5.3
Crop yields—Corn, bu. per acre		42.5	39.0	40.9
Oats, bu. per acre		35.7	35.6	33.3
Wheat, bu. per acre		24.2	24.1	22.1
Value of feed fed to productive livestock		1 634	1 953	1 518
Returns per $100 of feed fed to productive livestock		123	152	97
Returns per $100 invested in:				
Cattle		51	62	11
Poultry		137	177	124
Pigs weaned per litter		6.6	6.5	6.3
Income per litter farrowed		55	56	56
Dairy sales per dairy cow		50	75	34
Investment in productive livestock per acre		9.85	13.11	8.45
Receipts from productive livestock per acre		9.22	12.36	7.09
Power and machinery cost per crop acre		3.94	4.23	4.42
Machinery cost per crop acre		2.29	2.54	2.33
Value of feed fed to horses		186	197	205
Man labor cost per $100 gross income		45	36	55
Man labor cost per acre		4.28	4.47	4.09
Expenses per $100 gross income		131	98	177
Farm improvements cost per acre		.95	.77	.99
Farms with tractor		60%	64%	50%
Excess of sales over cash expenses		1 573	2 366	1 216
Decrease in inventory		1 459	1 540	1 619

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-THREE FARMS IN MACOUPIN COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. E. Wills, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Macoupin County, was lower in 1931 than in 1930. In 1930 the average net income was $773 per farm while in 1931 there was an average loss of $843 per farm. In 1930 the average farm had cash sales of $1845 in excess of cash expenses as compared with $1022 in 1931. The inventory loss for 1930 was $198 per farm as compared with $1032 for 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: The value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis.

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*W. F. Coolidge, farm adviser in Macoupin County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Macoupin County farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 640		$2 164
Feed, grain and supplies	1 645		1 245
Machinery	1 540		1 439
Improvements	3 594		3 539
Total inventory	9 419		8 387
Decrease in inventory		$1 032	
Total cash sales for 1931		2 962	
Total cash purchases for 1931		1 940	
Excess of cash sales over cash purchases		1 022	
Decrease in inventory		1 032	
Decrease for the year (see "Receipts less expenses" at bottom of table, page 7)		10	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year, the larger supplies being due to the higher crop yields in 1931.

Other industries then farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) Corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Macoupin County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 33 farms included in this study ranged in size from 80 to 400 acres per farm. Only one was smaller than 100 acres and 7 were larger than 300 acres. The average size for all farms in the group was 221 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	260 - 299	2
100 - 139	2	300 - 339	3
140 - 179	7	340 - 379	3
180 - 219	10	380 - 419	1
220 - 259	4		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 33 farms included in the present study, the value of bare land per acre was $30 to $69 per acre on 12 farms; $70 to $109 on 19 farms, and $110 to $149 on 2 farms. The average value was $76 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $119 per acre.

As previously stated, the average for all farms indicated a loss of $843 per farm after deducting $833 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1587 of having enough income fo pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249; while the operators of two farms sustained losses of more than $2249. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$2249 to 1750	1	-750 to -1249	7
1749 to 1250	0	-1250 to -1749	6
1249 to 750	1	-1750 to -2249	3
749 to 250	1	-2250 to -2749	1
249 to -249	2	-2750 to -3249	0
-250 to -749	10	-3250 to -3749	1

A comparison of the 11 farms having the highest rate earned on investment with the 11 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 233 acres in size as compared with 184 for the less profitable group. The larger farms had a lower percentage of the land area tillable and also a lower value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The least profitable farms grew 3.7 bushels more corn, 14.4 bushels more oats, but 1.4 bushels less wheat per acre than did the most profitable farms. In spite of the lower crop production on the more profitable farms the closing inventory of feed and grain was $66 per farm higher than the beginning inventory, while on the less profitable farms it was $631 less than the beginning.

The investment per farm in livestock was $231 more on the most profitable farms than on the least profitable and the income was $990 per farm higher while at the same time the decrease from the feed and grain account was smaller by $512. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $147 for the more profitable farms as compared with $69 for the less profitable farms. Although there were 6.3 pigs weaned per litter on the more profitable farms and 7.1 on the less profitable farms, the returns per litter were $55 and $43 respectively. Dairy sales were $31 per cow higher on the more profitable farms. The more efficient livestock on the most profitable farms resulted in gross receipts per acre of $9.14 as compared with $5.86 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.58 as compared with $14.51 for the least profitable group. The cost of power and machinery was $2.14 per crop acre lower for the more successful farms, and the man labor cost was $1.36 an acre lower. The less profitable farms had a loss of $608 per farm in the feed and grain account as compared with $96 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of 56 cents per acre for the more profitable farms as compared with a loss of $8.65 per acre for the less profitable group. For the first group this was a return of .50% on the capital invested in the business and for the second group a loss of 6.85%. The higher income per acre on the more profitable farms was due largely to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and feed accounts.

The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

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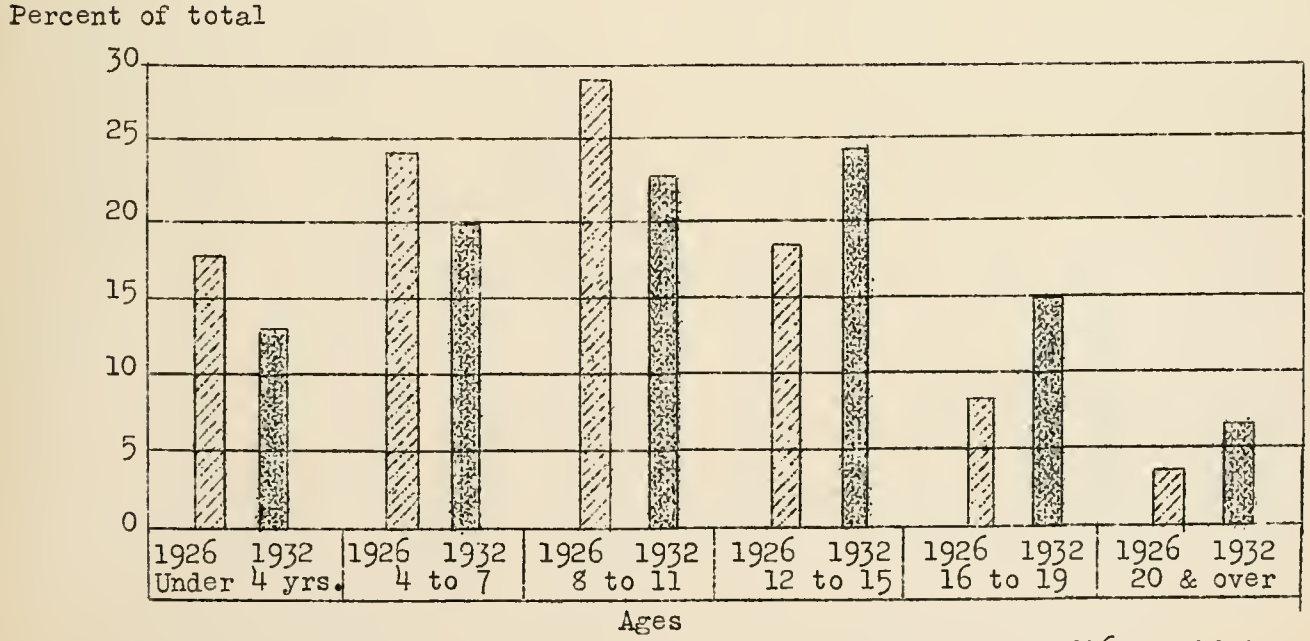
Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Two-Year Period

Some comparative investment and earning data on accounting farms in Macoupin County for 1930 and 1931 are shown in the following table. The rate earned dropped sharply in 1931 as compared with 1930. The average land value was $13 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The increase from livestock was much lower in 1931 than in 1930. There was an increase from crops in 1930 but a loss in 1931.

Comparison of Earnings and Investments on Accounting Farms in Macoupin County for 1930-1931

Items	1930[1]	1931
Number of farms	28	33
Average size of farms, acres	207	221
Average rate earned, to pay for management, risk and capital	2.8%	-3.21%
Average labor and management wage	$ 3	$-1587
Gross income per acre	15.00	7.31
Operating cost per acre	11.27	11.12
Average value of land per acre	89	76
Total investment per acre	134	119
Investment per farm in:		
Total livestock	2520	2640
Cattle	1211	1488
Hogs	598	516
Poultry	151	139
Gross income per farm	3109	1617
Income per farm from:		
Crops	434	---
Miscellaneous income	67	61
Total livestock	2608	1556
Cattle	254	260
Dairy sales	797	601
Hogs	1290	417
Poultry	250	213
Average yield of corn in bu.	29	33
Average yield of wheat in bu.	17	26

[1]Records from Jersey County included in 1930.

Investments, Receipts, Expenses, and Earnings on
33 Macoupin County Farms, 1931

Items	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farms
CAPITAL INVESTMENTS				
Land		16 859	16 301	14 797
Farm improvements		3 594	4 176	3 102
Livestock total		2 640	2 630	2 399
Horses		388	399	400
Cattle		1 488	1 581	1 287
Hogs		516	433	535
Sheep		109	78	50
Poultry		139	139	127
Machinery and equipment		1 540	1 586	1 289
Feed, grain and supplies		1 645	1 263	1 619
Total capital investment	$	$ 26 278	$ 25 956	$ 23 206
RECEIPTS AND NET INCREASES				
Livestock total		1 556	2 035	1 045
Horses		---	62	---
Cattle		260	267	115
Hogs		601	578	460
Sheep		65	55	49
Poultry		83	90	69
Egg sales		130	128	115
Dairy sales		417	855	237
Feed, grain and supplies		---	---	---
Labor off farm		41	53	17
Miscellaneous receipts		20	45	16
Total receipts & net increases	$	$ 1 617	$ 2 133	$ 1 078
EXPENSES AND NET DECREASES				
Farm improvements		164	130	145
Horses		5	---	59
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		358	300	385
Feed, grain and supplies		424	96	608
Livestock expense		25	20	30
Crop expense		161	137	154
Hired labor		214	242	209
Taxes		248	264	217
Miscellaneous expenses		28	24	32
Total expenses & net decreases	$	$ 1 627	$ 1 213	$ 1 839
RECEIPTS LESS EXPENSES	$	$ -10	$ 920	$ -761
Total unpaid labor		833	789	830
Operator's labor		570	582	546
Family labor		263	207	284
Net income from investment and management		-843	131	-1 591
RATE EARNED ON INVESTMENT	%	-3.21%	.50%	- 6.85%
Return to capital and operator's labor and management		-273	713	-1 045
5% of capital invested		1 314	1 298	1 160
LABOR AND MANAGEMENT WAGE	$	$ -1 587	$ -585	$ -2 205

Chart for Studying the Efficiency of Various Parts of Your Business

Macoupin County, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 33 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

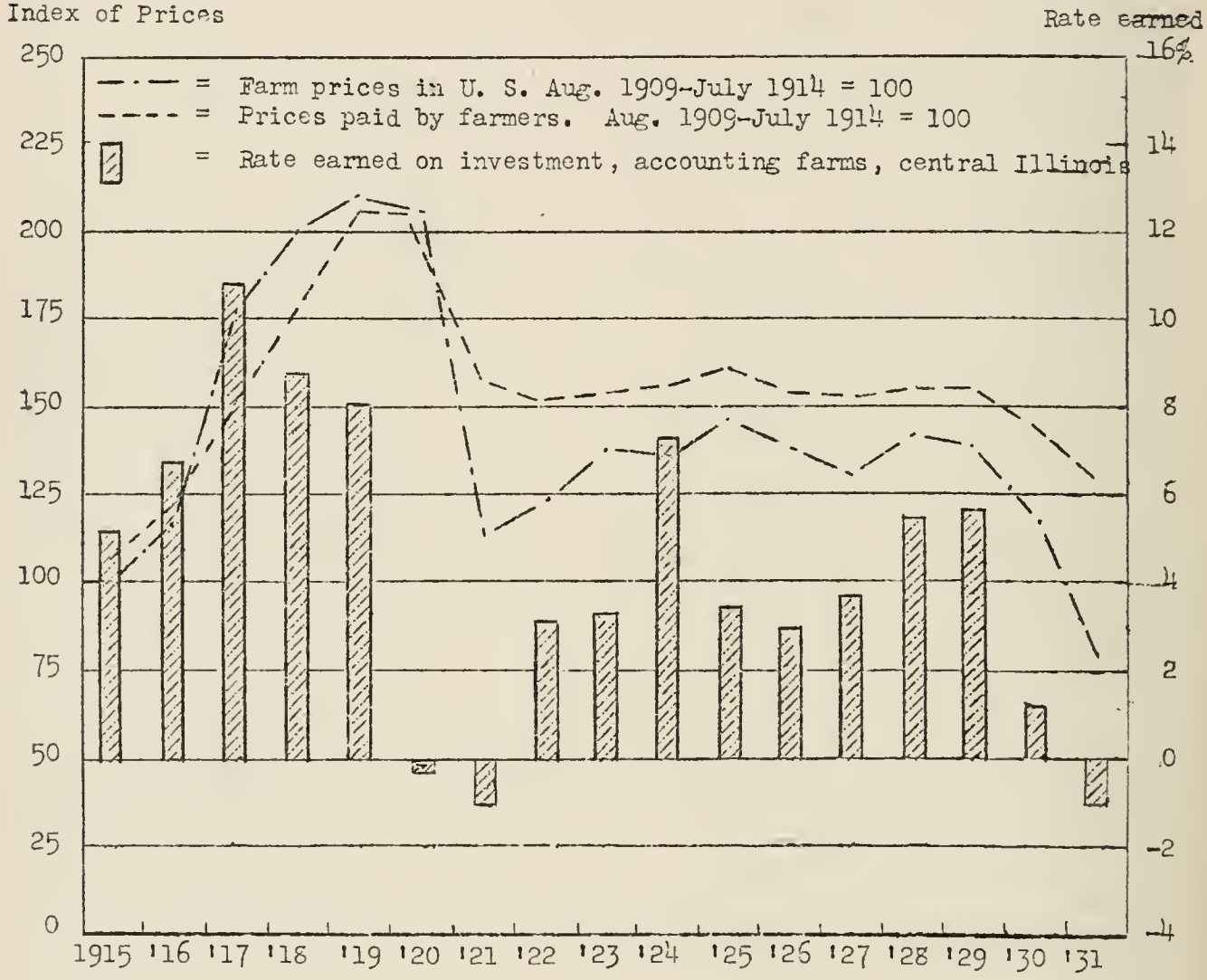
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
4.0	47	60	40	120	300	85	170	110	16	--	25	115	14	4 400	360
3.0	45	58	38	110	280	80	160	100	15	.40	30	120	13	4 000	340
2.0	43	56	36	100	260	75	150	90	14	.90	35	125	12	3 600	320
1.0	41	54	34	90	240	70	140	80	13	1.40	40	130	11	3 200	300
0.0	39	52	32	80	220	65	130	70	12	1.90	45	135	10	2 800	280
-1.0	37	50	30	70	200	60	120	60	11	2.40	50	140	9	2 400	260
-2.0	35	48	28	60	180	55	110	50	10	2.90	55	145	8	2 000	240
-3.0	33	46	26	50	160	50	100	40	9	3.40	60	150	7	1 600	220
-4.0	31	44	24	40	140	45	90	30	8	3.90	65	155	6	1 200	200
-5.0	29	42	22	30	120	40	80	20	7	4.40	70	160	5	800	180
-6.0	27	40	20	20	100	35	70	10	6	4.90	75	165	4	400	160
-7.0	25	38	18	10	80	30	60	0	5	5.40	80	170	3	0	140
-8.0	23	36	16	0	60	25	50	--	4	5.90	85	175	2	---	120
-9.0	21	34	14	--	40	20	40	--	3	6.40	90	180	1	---	100
-10.0	19	32	12	--	20	15	30	---	2	6.90	95	185	0	---	80

Factors Helping to Analyze the Farm Business on
33 Macoupin County Farms in 1931

Items	Your farm	Average of 33 farms	11 most profitable farms	11 least profitable farms
Size of farm--acres	_____	221.3	233.3	184.0
Percent of land area tillable		84.8	83.8	90.9
Gross receipts per acre	_____	7.31	9.14	5.86
Total expenses per acre		11.12	8.58	14.51
Net receipts per acre		-3.81	.56	-8.65
Value of land per acre		76	70	80
Total investment per acre		119	111	126
Acres in Corn	_____	71.4	68.9	65.7
Oats	_____	20.9	21.8	22.1
Wheat	_____	24.4	30.5	17.9
Soybeans	_____	21.9	21.2	17.2
Crop yields--Corn, bu. per acre	_____	32.8	32.2	35.9
Oats, bu. per acre	_____	46.5	36.6	51.0
Wheat, bu. per acre	_____	26.2	24.8	23.4
Soybeans, bu. per acre	_____	16.0	18.2	17.7
Value of feed fed to productive livestock	_____	1555	1343	1512
Returns per $100 of feed fed to productive livestock	_____	100	147	69
Returns per $100 invested in:				
Cattle	_____	51	73	33
Poultry	_____	159	150	152
Pigs weaned per litter	_____	6.5	6.3	7.1
Income per litter farrowed	_____	48	55	43
Dairy sales per dairy cow	_____	42	71	40
Investment in productive livestock per acre	_____	9.16	9.11	9.19
Receipts from productive livestock per acre	_____	7.03	8.46	5.68
Power and machinery cost per crop acre	_____	3.42	2.34	4.48
Machinery cost per crop acre	_____	2.22	1.74	2.74
Value of feed fed to horses	_____	189	165	185
Man labor cost per $100 gross income	_____	62	46	95
Man labor cost per acre	_____	4.55	4.19	5.55
Expenses per $100 gross income	_____	152	94	248
Farm improvements cost per acre	_____	.74	.56	.79
Farms with tractor	_____	61%	64	36
Excess of sales over cash expenses	_____	1 022	1 187	593
Decrease in inventory	_____	1 032	267	1 354

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-FIVE FARMS IN EFFINGHAM COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, L. Wright, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Effingham County, was only slightly lower in 1931 than in 1930. In 1930 the average net income was $22 per farm while in 1931 there was an average loss of $6 per farm. In 1930, however, $732 per farm was deducted for the labor of the operator and the family as compared with $653 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operations was $600 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $687 in excess of cash expenses as compared with $673 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02 percent on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis.

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*G. H. Iftner, farm adviser in Effingham County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 35 Effingham County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$1 506	$1 399	
Feed, grain and supplies	940	1 072	
Machinery	1 101	1 057	
Improvements	1 913	1 906	
Total inventory	5 460	5 434	
Decrease in inventory			$ 26
Total cash sales for 1931			1 576
Total cash purchases for 1931			903
Excess of cash sales over cash purchases			673
Decrease in inventory			26
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)			647

An increase in the feed, grain, and supplies inventory is to be noted in spite of the sharp decrease in the value of these products. This is explained by the larger quantity of these supplies on hand, this in turn being due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Effingham County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 35 farms included in this study ranged in size from 80 to 450 acres per farm. Only two were smaller than 100 acres and only two were larger than 300 acres. The average size for all farms in the group was 196 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	260 - 299	5
100 - 139	7	300 - 339	1
140 - 179	5	340 - 379	-
180 - 219	9	380 - 419	-
220 - 259	5	420 - 459	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 35 farms included in the present study, the value of bare land per acre was $50 to $69 per acre on 4 farms; $30 to $49 on 29 farms, and $10 to $29 on 2 farms. The average value was $40 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $67 per acre.

As previously stated, the average for the 35 farms indicated a loss of $6 per farm after deducting $653 for the labor of the operator and the family. This left no return for the use of the capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $186 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the 35 farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $625; while the operators of two farms sustained losses of more than $625. The distri-

bution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1124 to $875	2	124 to -124	7
874 to 625	1	-125 to -374	8
624 to 375	2	-375 to -624	5
374 to 125	8	-625 to -874	2

A comparison of the 12 farms having the highest rate earned on investment with the 12 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The farms in the two groups were quite similar from the standpoint of physical characteristics. They averaged about the same size, had about the same percentage of the land area tillable, and had comparable values per acre for land and for total investment. In addition, the cropping system was practically the same for the two groups. There was, however, considerable difference in the crop yields. The most profitable farms grew 9.5 bushels more corn, .5 bushels more oats, and 7.8 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $391 per farm higher than the beginning inventory, while on the less profitable farms it was $127 less than the beginning.

The total investment in livestock was about the same for both groups but the more profitable farms had fewer hogs and more poultry than the less profitable farms. The income from productive livestock was $337 per farm higher on the more profitable group, and at the same time the increase from the feed and grain account was larger by $593. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $175 for the more profitable farms as compared with $118 for the less profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $8.89 as compared with $4.39 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed but little difference. The average expense per acre for the most profitable farms was $6.35 as compared with $6.83 for the least profitable group. The cost of power and machinery was $1 per crop acre lower for the more successful farms, but the man labor cost was 24 cents an acre higher. The less profitable farms had a loss of $121 per farm in the field and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.54 per acre for the more profitable farms as compared with the loss of $2.44 per acre for the less profitable group. For the first group this was a return of 3.82% on the capital invested in the business and for the second group a loss of 3.52%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to saving made on the more profitable farms in the machinery and equipment account.

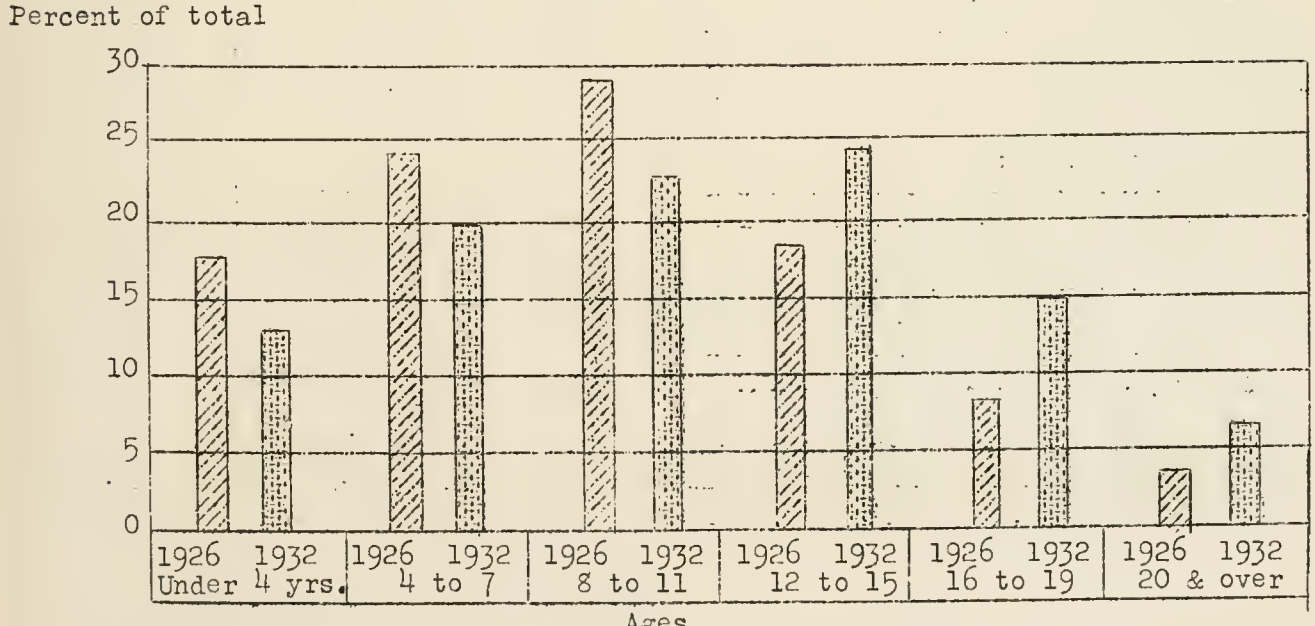
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start how to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Three-Year Period

Some comparative investment and earning data on accounting farms in Effingham County for 1929, 1930 and 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again slightly in 1931. The average land value remained the same for both 1930 and 1931. Both the gross income and the operating expense per acre were lower in 1931 than in 1930. The increase from crops was higher and the increase from livestock was lower in 1931 than in 1930. The crop increase was due to superior crop yields in the latter year.

Comparison of Earnings and Investments on Accounting Farms in Effingham County for 1929-1931

Items	1929[1/]	1930	1931
Number of farms	46	32	35
Average size of farms, acres	181	189	196
Average rate earned, to pay for management, risk and capital	4.9%	0.2%	- 0.05%
Average labor and management wage	$ 584	$ - 61	$ -186
Gross income per acre	11.20	7.44	6.18
Operating cost per acre	7.94	7.32	6.21
Average value of land per acre	37	40	40
Average investment per acre	67	68	67
Investment per farm in:			
Total livestock	1 539	1 741	1 506
Cattle	777	957	819
Hogs	102	116	107
Poultry	206	269	211
Gross income per farm	2 028	1 406	1 210
Income per farm from:			
Crops	380	62	214
Miscellaneous income	79	48	72
Total livestock	1 569	1 296	924
Cattle	316	141	82
Dairy sales	424	410	330
Hogs	272	238	132
Poultry	484	494	363
Average yield of corn in bu.	28	14	34.3
Average yield of wheat in bu.	12	13	26.6

1/Records from Clay, Marion, Jefferson, Wayne and Richland Counties for 1929.

Investments, Receipts, Expenses, and Earnings on
35 Effingham County Farms, 1931

Item	Your farm	Average of 35 farms	12 most profitable farms	12 least profitable farms
CAPITAL INVESTMENTS				
Land		7 738	6 883	7 628
Farm improvements		1 913	1 791	1 975
Livestock total		1 506	1 386	1 426
Horses		333	302	296
Cattle		819	755	789
Hogs		107	48	137
Sheep		36	9	69
Poultry		211	272	135
Machinery and equipment		1 101	1 139	1 043
Feed, grain and supplies		940	833	905
Total capital investment	$	$13 198	$12 032	$12 977
RECEIPTS AND NET INCREASES				
Livestock total		924	1 081	744
Horses		---	---	---
Cattle		82	114	16
Hogs		132	84	212
Sheep		17	11	28
Poultry		112	156	91
Egg sales		251	356	143
Dairy sales		330	360	254
Feed, grain and supplies		214	472	---
Labor off farm		67	53	66
Miscellaneous receipts		5	2	11
Total receipts & net increases	$	$ 1 210	$ 1 608	$ 821
EXPENSES AND NET DECREASES				
Farm improvements		83	98	90
Horses		17	19	5
Miscellaneous livestock decreases		--	--	--
Machinery and equipment		127	71	149
Feed, grain and supplies		--	--	121
Livestock expense		11	11	9
Crop expense		104	96	103
Hired labor		61	66	50
Taxes		140	139	131
Miscellaneous expenses		20	17	21
Total expenses & net decreases	$	$ 563	$ 517	$ 679
RECEIPTS LESS EXPENSES	$	$ 647	$ 1 091	$ 142
Total unpaid labor		653	631	599
Operator's labor		480	480	480
Family labor		173	151	119
Net income from investment and management		- 6	460	-457
RATE EARNED ON INVESTMENT	%	- .05%	3.82%	-3.52%
Return to capital and operator's labor and management		474	940	23
5% of capital invested		660	602	649
LABOR AND MANAGEMENT WAGE	$	$ -186	$ 338	$ -626

Chart for Studying the Efficiency of Various Parts of Your Business
Effingham County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 35 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

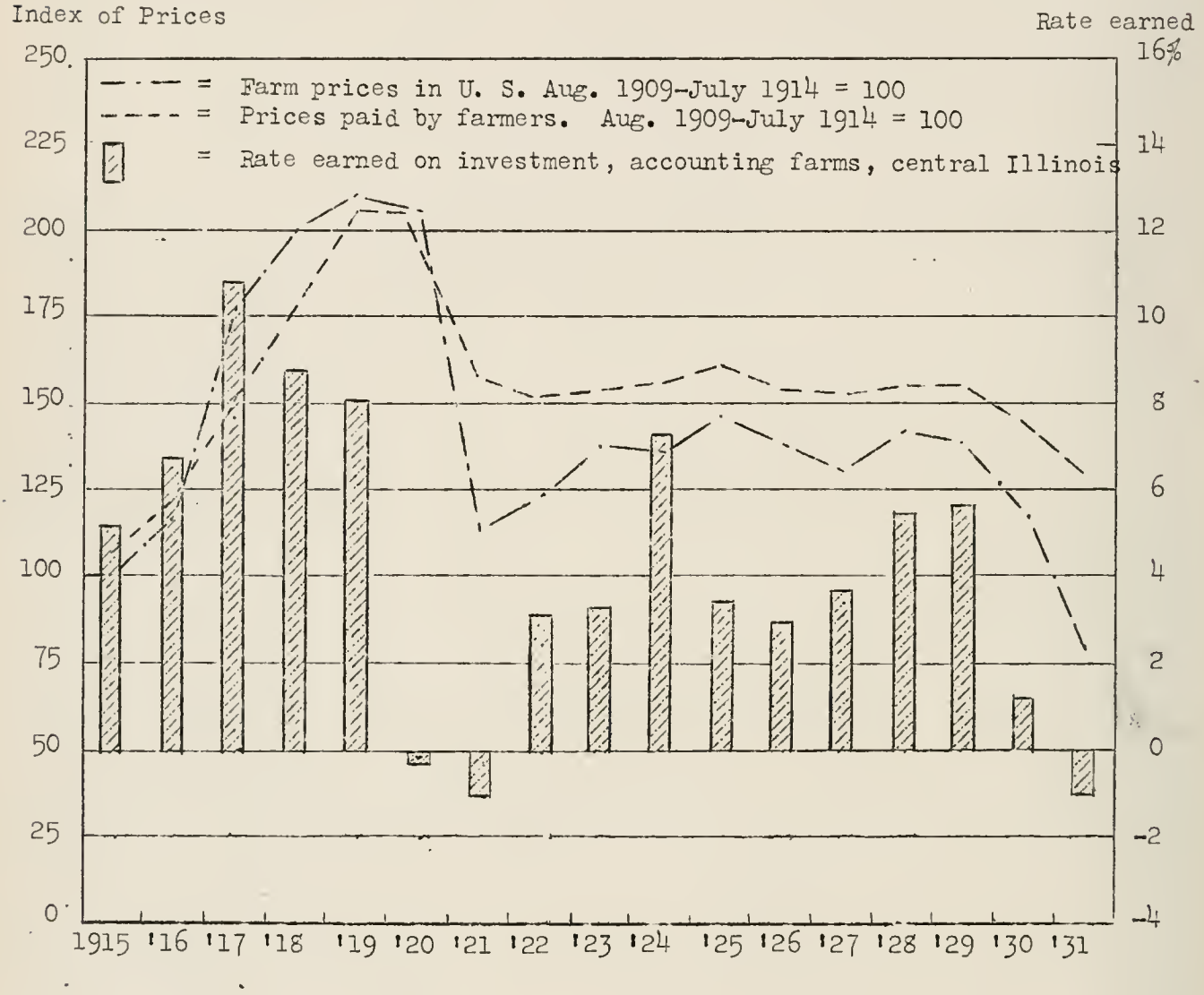
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
7	55	55	48	120	317	120	216	120	13	----	36	65	13	3 300	480
6	52	52	45	110	297	110	206	110	12	----	39	70	12	3 000	440
5	49	49	42	100	277	100	196	100	11	.0	42	75	11	2 700	400
4	46	46	39	90	257	90	186	90	10	.20	45	80	10	2 400	360
3	43	43	36	80	237	80	176	80	9	.70	48	85	9	2 100	320
2	40	40	33	70	217	70	166	70	8	1.20	51	90	8	1 800	280
1	37	37	30	60	197	60	156	60	7	1.70	54	95	7	1 500	240
0	34	34	27	50	177	50	146	50	6	2.20	57	100	6	1 200	200
-1	31	31	24	40	157	40	136	40	5	2.70	60	105	5	900	160
-2	28	28	21	30	137	30	126	30	4	3.20	63	110	4	600	120
-3	25	25	18	20	117	20	116	20	3	3.70	66	115	3	300	80
-4	22	22	15	10	97	10	106	10	2	4.20	69	120	2	0	40
-5	19	19	12	0	77	0	96	0	1	4.70	72	125	1	---	0
-6	16	16	9	--	57	---	86	--	0	5.20	75	130	0	---	--
-7	13	13	6	--	37	--	76	--	--	5.70	78	135	--	---	--

Factors Helping to Analyze the Farm Business on
35 Effingham County Farms in 1931

Items	Your farm	Average of 35 farms	12 most profitable farms	12 least profitable farms
Size of farm--acres	_____	196	181	187
Percent of land area tillable		87.2	87.3	88.5
Gross receipts per acre	_____	6.18	8.89	4.39
Total expenses per acre		6.21	6.35	6.83
Net receipts per acre		-.03	2.54	-2.44
Value of land per acre		40	38	41
Total investment per acre		67	67	69
Acres in Corn	_____	43.0	40.7	38.7
Oats	_____	30.6	29.3	26.8
Wheat	_____	16.7	18.4	12.1
Soybeans	_____	3.5	3.8	2.0
Crop yields--Corn, bu. per acre	_____	34.3	37.2	27.7
Oats, bu. per acre	_____	34.0	35.1	34.6
Wheat, bu. per acre	_____	26.6	32.9	25.1
Value of feed fed to productive livestock	_____	632	617	631
Returns per $100 of feed fed to productive livestock	_____	146	175	118
Returns per $100 invested in:				
Cattle	_____	52	62	36
Poultry	_____	177	183	186
Pigs weaned per litter	_____	6.8	6.6	6.9
Income per litter farrowed	_____	53	42	65
Dairy sales per dairy cow	_____	49	44	40
Investment in productive livestock per acre	_____	5.79	6.23	5.69
Receipts from productive livestock per acre	_____	4.72	5.98	3.97
Power and machinery cost per crop acre	_____	2.17	1.66	2.65
Machinery cost per crop acre		.94	.52	1.28
Value of feed fed to horses	_____	148	135	155
Man labor cost per $100 gross income	_____	57	40	79
Man labor cost per acre	_____	3.52	3.56	3.32
Expenses per $100 gross income	_____	100	71	156
Farm improvements cost per acre		.42	.54	.48
Farms with tractor	_____	49%	67%	50%
Excess of sales over cash expenses	_____	673	600	578
Decrease in inventory	_____	26	491 inc.	436

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

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ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN MONTGOMERY, BOND AND SHELBY COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, H. G. Russell and H. C. M. Case*

The average of farm earnings, on account keeping farms in this area, was lower in 1931 than in 1930. In 1930 the average net income was $207 per farm while in 1931 there was an average loss of $654 per farm. In 1930, however, $879 per farm was deducted for the labor of the operator and the family as compared with $673 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $720 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $1,650 in excess of cash expenses as compared with $1,181 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decreases in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: The value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*A. E. Snyder, J. H. Brock, and W. S. Batson, farm advisers in Montgomery, Bond and Shelby Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 30 farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 312		$1 870
Feed, grain and supplies	1 804		1 271
Machinery	1 394		1 276
Improvements	3 115		3 046
Total inventory	8 625		7 463
Decrease in inventory		$1 162	
Total cash sales for 1931		3 312	
Total cash purchases for 1931		2 131	
Excess of cash sales over cash purchases		1 181	
Decrease in inventory		1 162	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		19	

A decrease in the feed, grain and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The price of grains decreased about 50% during 1931, whereas crop yields were much better than for the previous year.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in this area. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 30 farms included in this study ranged in size from 114 to 360 acres per farm. Only 4 were smaller than 180 acres and only 4 were larger than 339 acres. The average size for all farms in the group was 238 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
100 - 139	3	260 - 299	3
140 - 179	1	300 - 339	5
180 - 219	10	340 - 379	4
220 - 259	4		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $30 to $69 per acre on 19 farms; $70 to $109 on 8 farms, and over $110 on 3 farms. The average value was $70 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $106 per acre.

As previously stated, the average for all farms indicated a loss of $654 per farm after deducting $673 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1,445 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $249; while the operators of three farms sustained losses of more than $1,749. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$749 to 250	3	$-1 250 to -1 749	5
249 to -249	6	-1 750 to -2 249	2
-250 to -749	7	-2 250 to -2 749	1
-750 to -1 249	6		

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 252 acres in size as compared with 249 for the less profitable group. The larger farms had a higher percentage of the land area tillable but lower value per acre for bare land. The cropping system was quite different for the average of the two groups of farms. There was a relatively large acreage of corn and oats on the more profitable farms while the percentage of land in wheat and soybeans was large for the less profitable group. The most profitable farms grew 7.3 bushels more corn, 1.6 bushels more oats, but 1.5 bushels less wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $209 per farm less than the beginning inventory, while on the less profitable farms the loss was $858 per farm.

The investment per farm in livestock was $53 less on the most profitable farms than on the least profitable but the income was $473 per farm higher while at the same time the decrease from the feed and grain account was smaller by $565. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $105 for the more profitable farms as compared with $90 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 7.3 pigs weaned per litter on the more profitable farms but only 6.9 on the less profitable farms. Dairy sales were $32 per cow higher and returns per $100 invested in poultry $29 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $8.21 as compared with $6.19 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $7.68 as compared with $11.91 for the least profitable group. The cost of power and machinery was $1.37 per crop acre lower for the more successful farms, and the man labor cost was 32 cents an acre lower. Both the investment per farm and the expense per acre for improvements were lower on the more profitable farms. The less profitable farms had a loss of $742 per farm in the feed and grain account, as compared with $177 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of 53 cents per acre for the more profitable farms as compared with a loss of $5.72 per acre for the less profitable group. For the first group this was a return of .55% on the capital invested in the business and for the second group a loss of 5.31%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

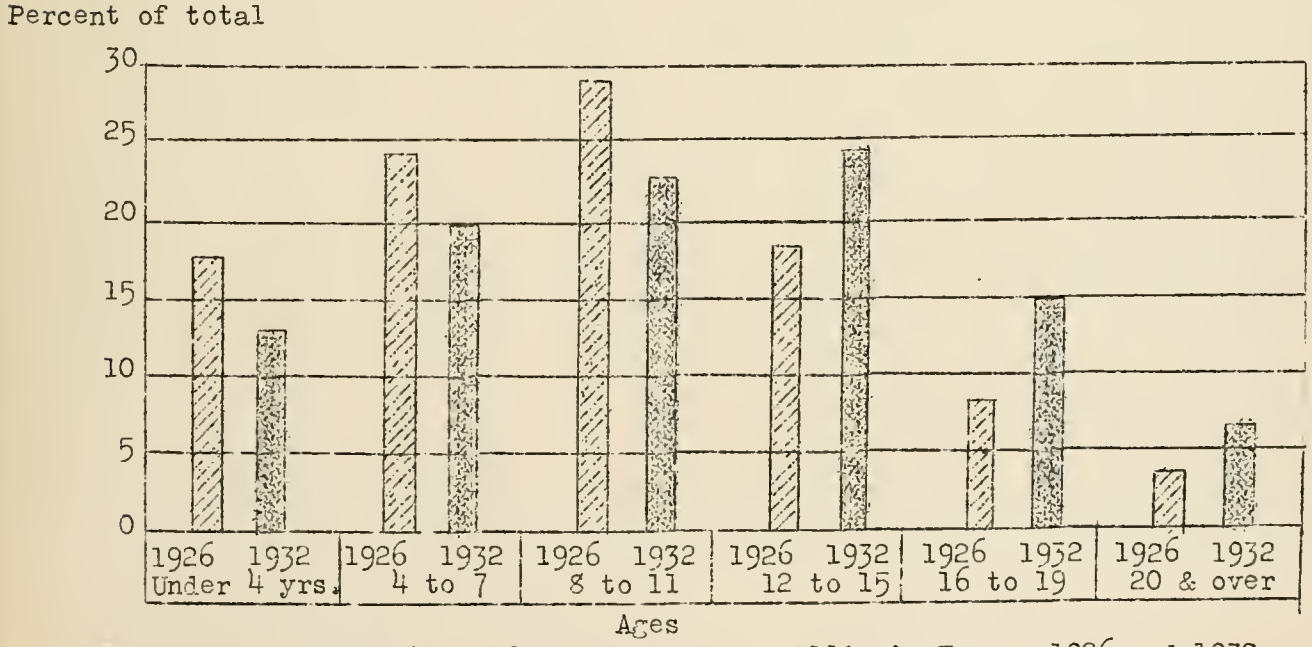
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Montgomery, Bond and Shelby Counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $2 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The decrease from crops was higher and the increase from livestock was lower in 1931 than in 1930. The crop decrease was larger in spite of higher crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Montgomery, Bond, Shelby Counties for 1927-1931

Items	1927[1]	1928[1]	1929[1]	1930	1931
Number of farms	27	33	42	30	30
Average size of farms, acres	161	184	175	221	238
Average rate earned, to pay for management, risk and capital	4.4%	4.6%	6.2%	0.8%	-2.59%
Average labor and management wage	$497	$508	$817	$-419	$-1 445
Gross income per acre	16.24	16.74	18.43	12.28	7.00
Operating cost per acre	11.53	11.30	11.88	11.34	9.75
Average value of land per acre	66	76	62	72	70
Total investment per acre	107	117	106	114	106
Investment per farm in:					
Total livestock	1627	1811	2128	2748	2312
Cattle	683	844	1149	1502	1137
Hogs	394	328	337	519	565
Poultry	188	176	172	206	167
Gross income per farm	2608	3080	3225	2714	1665
Income per farm from:					
Crops	338	540	---	---	---
Miscellaneous income	135	101	90	56	69
Total livestock	2135	2439	3135	2658	1596
Cattle	292	452	427	282	68
Dairy sales	765	806	1094	685	478
Hogs	734	772	1178	1353	803
Poultry	296	328	392	310	219
Average yield of corn in bu.	31	40	38	27	31
Average yield of wheat in bu.	14	7	10	14	26

1/Madison County records included for 1927, 1928, and 1929.

Investments, Receipts, Expenses, and Earnings on 30
Montgomery, Bond and Shelby County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		16 640	16 087	17 202
Farm improvements		3 115	2 598	3 762
Livestock total		2 312	2 281	2 334
Horses		354	347	291
Cattle		1 137	967	1 046
Hogs		565	736	627
Sheep		89	77	160
Poultry		167	154	210
Machinery and equipment		1 394	1 398	1 443
Feed, grain and supplies		1 804	1 629	2 039
Total capital investment	$	$25 265	$23 993	$26 780
RECEIPTS AND NET INCREASES				
Livestock total		1 596	1 950	1 477
Horses		---	5	---
Cattle		68	16	---
Hogs		803	1 093	835
Sheep		28	33	39
Poultry		40	52	32
Egg sales		179	170	186
Dairy sales		478	581	385
Feed, grain and supplies		---	---	---
Labor off farm		68	112	60
Miscellaneous receipts		1	2	2
Total receipts & net increases	$	$ 1 665	$ 2 064	$ 1 539
EXPENSES AND NET DECREASES				
Farm improvements		205	161	273
Horses		15	---	17
Miscellaneous livestock decreases Cattle		---	---	59
Machinery and equipment		315	262	392
Feed, grain and supplies		454	177	742
Livestock expense		39	34	39
Crop expense		145	130	166
Hired labor		209	320	193
Taxes		238	230	270
Miscellaneous expenses		26	30	26
Total expenses & net decreases	$	$ 1 646	$ 1 344	$ 2 177
RECEIPTS LESS EXPENSES	$	$ 19	$ 720	$ -638
Total unpaid labor		673	587	785
Operator's labor		472	480	456
Family labor		201	107	329
Net income from investment and management		-654	133	-1 423
RATE EARNED ON INVESTMENT	%	-2.59%	.55%	-5.31%
Return to capital and operator's labor and management		-182	613	-967
5% of capital invested		1 263	1 200	1 339
LABOR AND MANAGEMENT WAGE	$	$-1 445	$ -587	$-2 306

Chart for Studying the Efficiency of Various Parts of Your Business
Montgomery, Bond and Shelby Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

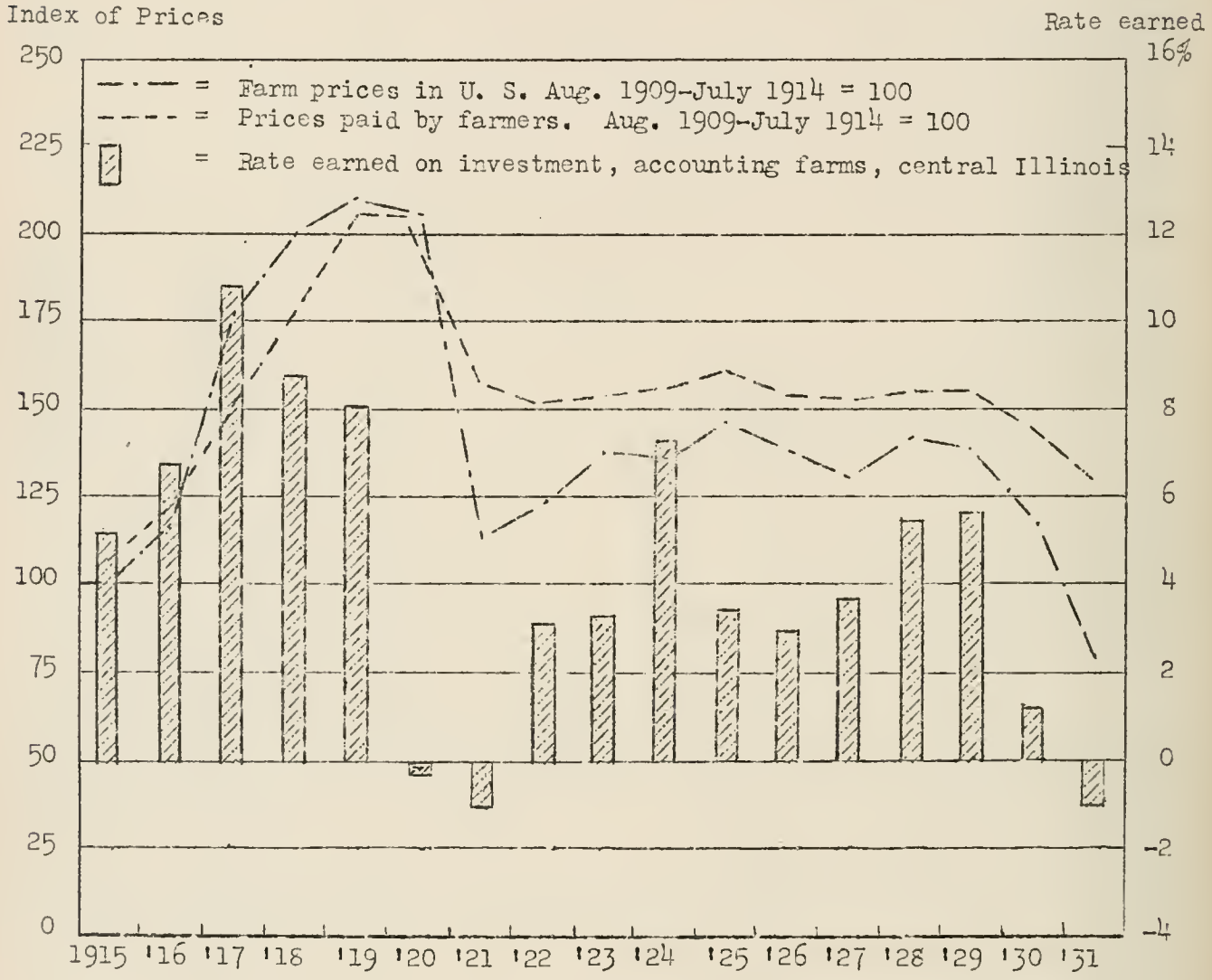
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
4.40	45	50	40	120	280	81	170	95	14	--	29	105	14	5 200	380
3.40	43	48	38	110	260	76	160	90	13	.22	32	110	13	4 700	360
2.40	41	46	36	100	240	71	150	85	12	.72	35	115	12	4 200	340
1.40	39	44	34	90	220	66	140	80	11	1.22	38	120	11	3 700	320
.40	37	42	32	80	200	61	130	75	10	1.72	41	125	10	3 200	300
-.60	35	40	30	70	180	56	120	70	9	2.22	44	130	9	2 700	280
-1.60	33	38	28	60	160	51	110	65	8	2.72	47	135	8	2 200	260
-2.60	31	36	26	50	140	46	100	60	7	3.22	50	140	7	1 700	240
-3.60	29	34	24	40	120	41	90	55	6	3.72	53	145	6	1 200	220
-4.60	27	32	22	30	100	36	80	50	5	4.22	56	150	5	700	200
-5.60	25	30	20	20	80	31	70	45	4	4.72	59	155	4	200	180
-6.60	23	28	18	10	60	26	60	40	3	5.22	62	160	3	---	160
-7.60	21	26	16	0	40	21	50	35	2	5.72	65	165	2	---	140
-8.60	19	24	14	--	20	16	40	30	1	6.22	68	170	1	---	120
-9.60	17	22	12	--	--	11	30	25	0	6.72	71	175	0	---	100

Factors Helping to Analyze the Farm Business on 30 Montgomery, Bond and Shelby County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres		237.8	251.5	248.6
Percent of land area tillable		86.1	89.8	82.3
Gross receipts per acre		7.00	8.21	6.19
Total expenses per acre		9.75	7.68	11.91
Net receipts per acre		-2.75	.53	-5.72
Value of land per acre		70	64	69
Total investment per acre		106	95	108
Acres in Corn		63.3	82.2	53.1
Oats		30.1	36.1	22.9
Wheat		21.1	15.8	28.2
Soybeans		14.6	6.8	27.5
Crop yields--Corn, bu. per acre		30.5	34.9	27.6
Oats, bu. per acre		36.4	35.3	33.7
Wheat, bu. per acre		25.9	23.3	24.8
Soybeans, bu. per acre		18.1	19.5	19.9
Value of feed fed to productive livestock		1548	1848	1581
Returns per $100 of feed fed to productive livestock		103	105	90
Returns per $100 invested in:				
Cattle		52	58	36
Poultry		141	146	117
Pigs weaned per litter		6.7	7.3	6.9
Income per litter farrowed		46	48	51
Dairy sales per dairy cow		61	76	44
Investment in productive livestock per acre		7.38	7.47	6.96
Receipts from productive livestock per acre		6.71	7.73	5.70
Power and machinery cost per crop acre		3.22	2.40	3.77
Machinery cost per crop acre		1.92	1.44	2.45
Value of feed fed to horses		197	181	194
Man labor cost per $100 gross income		51	41	60
Man labor cost per acre		3.58	3.37	3.69
Expenses per $100 gross income		139	94	192
Farm improvements cost per acre		.86	.64	1.10
Farms with tractor		70	80	60
Excess of sales over cash expenses		1181	1234	1182
Decrease in inventory		1162	514	1820

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON FORTY-SEVEN FARMS IN MADISON COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, J. E. Wills and H. C. M. Case*

The average of farm earnings, on account keeping farms in Madison County, was decidedly lower in 1931 than in 1930. In 1930 the average net income was $291 per farm while in 1931 there was an average loss of $359 per farm. In 1930, however, $860 per farm was deducted for the labor of the operator and the family as compared with $663 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $600 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $1415 in excess of cash expenses as compared with $892 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02 percent on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices, earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis.

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*T. W. May, farm adviser in Madison County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Madison County farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$2 017		$1 694
Feed, grain and supplies	1 345		1 196
Machinery	1 532		1 454
Improvements	2 876		2 838
Total inventory	7 770		7 182
Decrease in inventory		$588	
Total cash sales for 1931		2 606	
Total cash purchases for 1931		1 714	
Excess of cash sales over cash purchases		892	
Decrease in inventory		588	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		304	

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supplies were due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In

addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Madison County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 47 farms included in this study ranged in size from 70 to 257 acres per farm. Only 6 were smaller than 100 acres and only 5 were larger than 220 acres. The average size for all farms in the group was 156 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms
60 - 99	6
100 - 139	12
140 - 179	13
180 - 219	11
220 - 259	5

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 47 farms included in the present study, the value of bare land per acre was $10 to $49 per acre on 10 farms; $50 to $89 on 30 farms, and $90 to $129 on 7 farms. The average value was $62 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $112 per acre.

As previously stated, the average for all farms indicated a loss of $359 per farm after deducting $663 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $758 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $374; while the operators of 9 farms sustained losses of more than $874. The distribution of

the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1374 to $1125	1	124 to -124	4
1124 to 875	0	-125 to -374	8
874 to 625	2	-375 to -624	5
624 to 375	1	-625 to -874	10
374 to 125	7	-875 to -1124	5
		-1125 to -1374	3
		-1375 to -1624	1

A comparison of the 16 farms having the highest rate earned on investment with the 16 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 158 acres in size as compared with 153 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land, and for total investment. The most profitable farms grew 5.9 bushels more corn, 7.3 bushels more oats, and 5.7 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $106 per farm higher than the beginning inventory, while on the less profitable farms it was $215 less than the beginning.

The investment per farm in livestock was $567 more on the most profitable farms than on the least profitable and the income was $767 per farm higher while at the same time the decrease from the feed and grain account was smaller by $105. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $142 for the more profitable farms as compared with $99 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 6.9 pigs weaned per litter on the more profitable farms but only 5.8 on the less profitable farms. Dairy sales were $5 per cow higher and returns per $100 invested in poultry $100 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $12.85 as compared with $7.89 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $11.07 as compared with $13.90 for the least profitable group. The cost of power and machinery was 98 cents per crop acre lower for the more successful farms, but the man labor cost was 10 cents an acre higher. The less profitable farms had a loss of $144 per farm in the feed and grain account, as compared with $39 for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $1.78 per acre for the more profitable farms as compared with a loss of $6.01 per acre for the less profitable group. For the first group this was a return of 1.60% on the capital invested in the business and for the second group a loss of 6.12%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery and feed accounts.

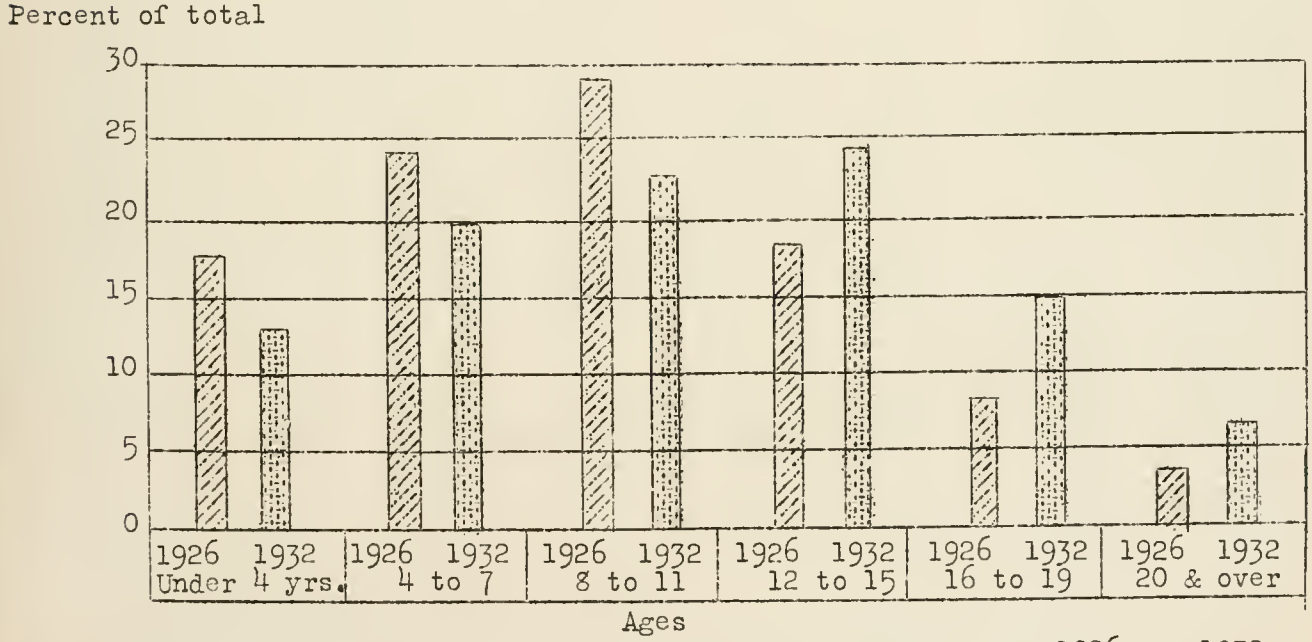
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Madison County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $5 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The decrease from crops was less and the increase from livestock was lower in 1931 than in 1930. The smaller decrease from crops was due to higher crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Madison County for 1927-1931

Items	1927 1/	1928 1/	1929 1/	1930	1931
Number of farms	27	33	42	41	47
Average size of farms, acres	161	184	175	154	156
Average rate earned, to pay for management, risk and capital	4.4%	4.6%	6.2%	1.6%	-2.05%
Average labor and management wage	$497	$508	$817	$-50	$-758
Gross income per acre	16.24	16.74	18.43	17.03	10.36
Operating cost per acre	11.53	11.30	11.88	15.14	12.66
Average value of land per acre	66	76	62	67	62
Total investment per acre	107	117	106	121	112
Investment per farm in:					
Total livestock	1 627	1 811	2 128	2 299	2 017
Cattle	683	844	1 149	1 413	1 255
Hogs	394	328	337	263	234
Poultry	188	176	172	234	183
Gross income per farm	2 608	3 080	3 225	2 623	1 617
Income per farm from:					
Crops	338	540	---	---	---
Miscellaneous income	135	101	90	91	86
Total livestock	2 135	2 439	3 135	2 532	1 531
Cattle	292	452	427	230	---
Dairy sales	765	806	1 094	1 377	941
Hogs	734	772	1 178	477	289
Poultry	296	328	392	435	295
Average yield of corn in bu.	31	40	38	25	33.9
Average yield of wheat in bu.	14	7	10	16	27.2

1/A few records from Bond and Montgomery counties included for 1927, 1928 and 1929.

Investments, Receipts, Expenses, and Earnings on
47 Madison County Farms, 1931

Item	Your farm	Average of 47 farms	16 most profitable farms	16 least profitable farms
CAPITAL INVESTMENTS				
Land		9 756	9 503	8 333
Farm improvements		2 876	3 115	2 391
Livestock total		2 017	2 289	1 722
Horses		309	286	287
Cattle		1 255	1 469	1 128
Hogs		234	279	146
Sheep		36	51	5
Poultry		183	204	156
Machinery and equipment		1 532	1 539	1 358
Feed, grain and supplies		1 345	1 148	1 208
Total capital investment	$	$17 526	$17 594	$15 012
RECEIPTS AND NET INCREASES				
Livestock total		1 531	1 919	1 152
Horses		---	---	---
Cattle		---	41	---
Hogs		289	441	144
Sheep		6	17	4
Poultry		134	170	56
Egg sales		161	211	105
Dairy sales		941	1 039	843
Feed, grain and supplies		---	---	---
Labor off farm		84	115	52
Miscellaneous receipts		2	2	2
Total receipts & net increases	$	$ 1 617	$ 2 036	$ 1 206
EXPENSES AND NET DECREASES				
Farm improvements		169	192	128
Horses		25	6	31
Miscellaneous livestock decreases cattle		42	---	189
Machinery and equipment		278	214	331
Feed, grain and supplies		97	39	144
Livestock expense		45	46	37
Crop expense		175	155	159
Hired labor		254	246	175
Taxes		198	183	220
Miscellaneous expenses		30	29	25
Total expenses & net decreases	$	$ 1 313	$ 1 110	$ 1 439
RECEIPTS LESS EXPENSES	$	$ 304	$ 926	$ -233
Total unpaid labor		663	644	685
Operator's labor		477	480	480
Family labor		186	164	205
Net income from investment and management		-359	282	-918
RATE EARNED ON INVESTMENT	%	-2.05%	1.60%	-6.12%
Return to capital and operator's labor and management		118	762	-438
5% of capital invested		876	880	751
LABOR AND MANAGEMENT WAGE	$	$ -758	$ -118	$-1 189

Chart for Studying the Efficiency of Various Parts of Your Business

Madison County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 47 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

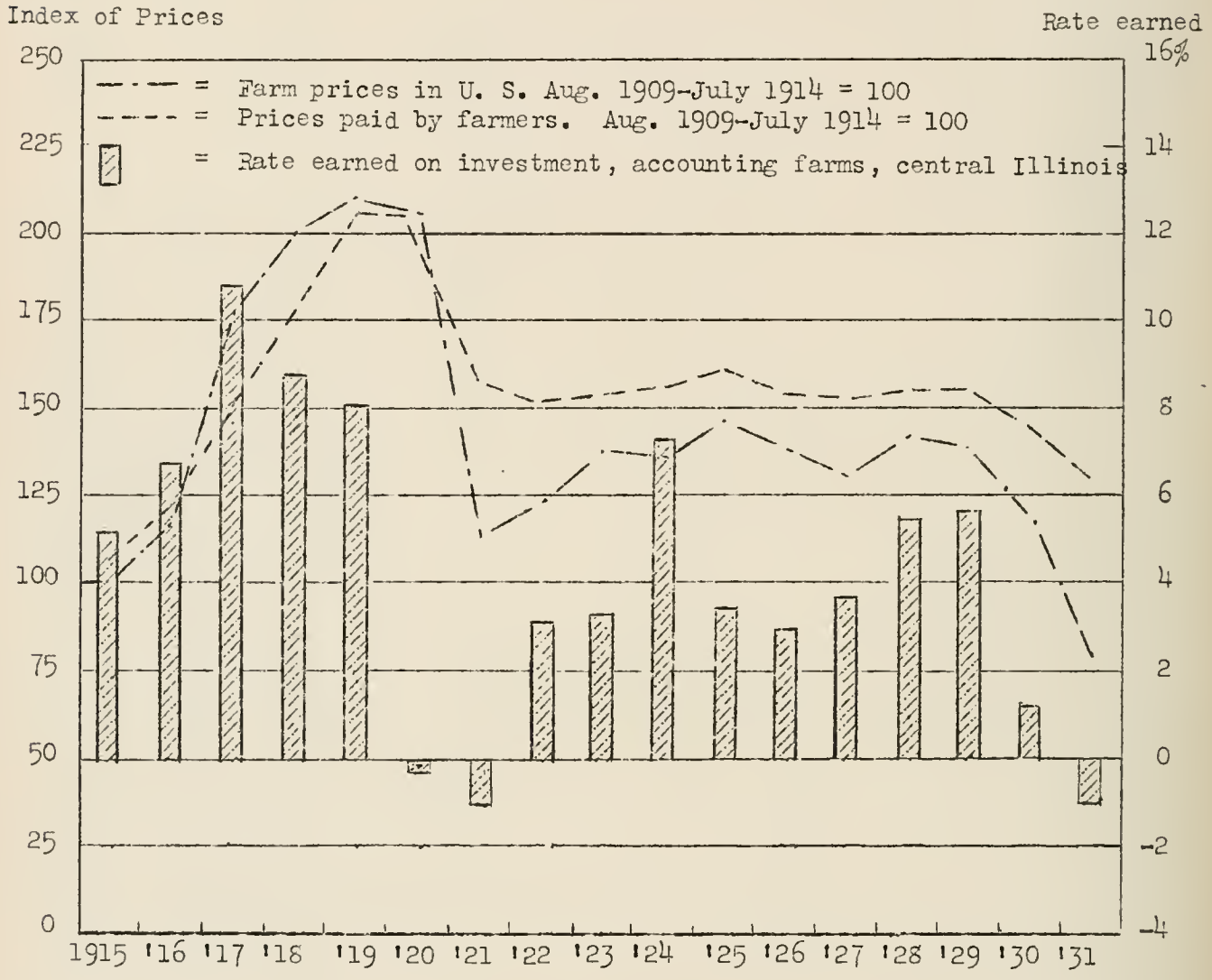
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
5.0	48	50	41	147	318	80	197	159	17	1.16	34	87	24	4 400	296
4.0	46	48	39	137	298	75	187	149	16	1.66	37	92	22	4 000	276
3.0	44	46	37	127	278	70	177	139	15	2.16	40	97	20	3 600	256
2.0	42	44	35	117	258	65	167	129	14	2.66	43	102	18	3 200	236
1.0	40	42	33	107	238	60	157	119	13	3.16	46	107	16	2 800	216
0.0	38	40	31	97	218	55	147	109	12	3.66	49	112	14	2 400	196
-1.0	36	38	29	87	198	50	137	99	11	4.16	52	117	12	2 000	176
-2.0	34	36	27	77	178	45	127	89	10	4.66	55	122	10	1 600	156
-3.0	32	34	25	67	158	40	117	79	9	5.16	58	127	8	1 200	136
-4.0	30	32	23	57	138	35	107	69	8	5.66	61	132	6	800	116
-5.0	28	30	21	47	118	30	97	59	7	6.16	64	137	4	400	96
-6.0	26	28	19	37	98	25	87	49	6	6.66	67	142	2	0	76
-7.0	24	26	17	27	78	20	77	39	5	7.16	70	147	0	---	56
-8.0	22	24	15	17	58	15	67	29	4	7.66	73	152	--	---	36
-9.0	20	22	13	7	38	10	57	19	3	8.16	76	157	--	---	16

Factors Helping to Analyze the Farm Business on
47 Madison County Farms in 1931

Items	Your farm	Average of 47 farms	16 most profitable farms	16 least profitable farms
Size of farm--acres	_____	156.1	158.4	152.8
Percent of land area tillable		83.1	82.6	80.5
Gross receipts per acre	_____	10.36	12.85	7.89
Total expenses per acre		12.66	11.07	13.90
Net receipts per acre		-2.30	1.78	-6.01
Value of land per acre		62	60	55
Total investment per acre		112	111	98
Acres in Corn	_____	34.3	38.5	32.4
Oats	_____	14.8	12.8	14.5
Wheat	_____	34.6	28.4	34.7
Soybeans	_____	2.0	----	2.3
Crop yields--Corn, bu. per acre	_____	33.9	36.1	30.2
Oats, bu. per acre	_____	36.4	40.5	33.2
Wheat, bu. per acre	_____	27.2	29.9	24.2
Value of feed fed to productive livestock	_____	1 173	1 348	968
Returns per $100 of feed fed to productive livestock	_____	127	142	99
Returns per $100 invested in:				
Cattle	_____	77	78	63
Poultry	_____	178	215	115
Pigs weaned per litter	_____	6.6	6.9	5.8
Income per litter farrowed	_____	45	55	36
Dairy sales per dairy cow	_____	89	91	86
Investment in productive livestock per acre	_____	9.97	11.68	8.50
Receipts from productive livestock per acre	_____	9.54	12.11	6.30
Power and machinery cost per crop acre	_____	4.66	4.04	5.02
Machinery cost per crop acre	_____	2.49	1.95	3.05
Value of feed fed to horses	_____	217	224	182
Man labor cost per $100 gross income	_____	55	42	67
Man labor cost per acre	_____	5.70	5.39	5.29
Expenses per $100 gross income	_____	122	86	176
Farm improvements cost per acre	_____	1.08	1.21	.84
Farms with tractor	_____	66%	56%	69%
Excess of sales over cash expenses	_____	892	1 325	292
Decrease in inventory	_____	588	399	525

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-ONE FARMS IN CLINTON COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, R. G. Trummel, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Clinton County, was lower in 1931 than in 1930. In 1930 the average net income was $365 per farm while in 1931 there was an average income of $30 per farm. In 1930, however, $932 per farm was deducted for the labor of the operator and the family as compared with $692 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $600 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $1,514 in excess of cash expenses as compared with $937 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*W. A. Cope, farm adviser in Clinton County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the Clinton County farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931	
Total livestock	$1 863	$1 709	
Feed, grain and supplies	1 328	1 345	
Machinery	1 594	1 510	
Improvements	2 695	2 701	
Total inventory	7 480	7 265	
Decrease in inventory			$ 215
Total cash sales for 1931			$2 218
Total cash purchases for 1931			$1 281
Excess of cash sales over cash purchases			937
Decrease in inventory			215
Increase for the year (see "Receipts less expenses" at bottom table, page 7)			722

An increase in the feed, grain, and supplies inventory is to be noted in spite of the sharp decrease in the value of these products. This is explained by the larger quantity of these supplies on hand, this in turn being due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Clinton County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 31 farms included in this study ranged in size from 80 to 333 acres per farm. Two were smaller than 100 acres and 5 were larger than 220 acres. The average size for all farms in the group was 170 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	220 - 259	3
100 - 139	9	260 - 299	1
140 - 179	7	300 - 339	1
180 - 219	8		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 31 farms included in the present study, the value of bare land per acre was $30 to $49 on 4 farms; $50 to $89 on 23 farms, and $90 to $109 on 4 farms. The average value was $64 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $108 per acre.

As previously stated, the average for all farms indicated a net income of $30 per farm after deducting $692 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $428 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $749; while the operators of 4 farms sustained losses of more than $749. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 749 to 1 250	3	249 to -249	10
1 249 to 750	1	-250 to -749	7
749 to 250	6	-750 to -1 249	4

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 171 acres in size as compared with 166 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 10.6 bushels more corn, 19.4 bushels more oats, and 1.8 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $188 per farm higher than the beginning inventory, while on the less profitable farms it was $209 less than the beginning.

The investment per farm in livestock was the same on the most profitable farms as on the least profitable yet the income was $481 per farm higher while at the same time the increase from the feed and grain account was larger by $368. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed was $135 for the more profitable farms as compared with $106 for the less profitable farms. There were 6.8 pigs weaned per litter on the more profitable farms and 7.2 on the less profitable farms, yet the income per litter was $37 and $33 respectively. Dairy sales were $12 per cow higher and returns per $100 invested in poultry $15 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $12.79 as compared with $7.15 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.26 as compared with $10.98 for the least profitable group. The cost of power and machinery was $1.54 per crop acre lower for the more successful farms, and the man labor cost was 99 cents an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $4.53 per acre for the more profitable farms as compared with a loss of $3.83 per acre for the less profitable group. For the first group this was a return of 4.15% on the capital invested in the business and for the second group a loss of 3.62%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

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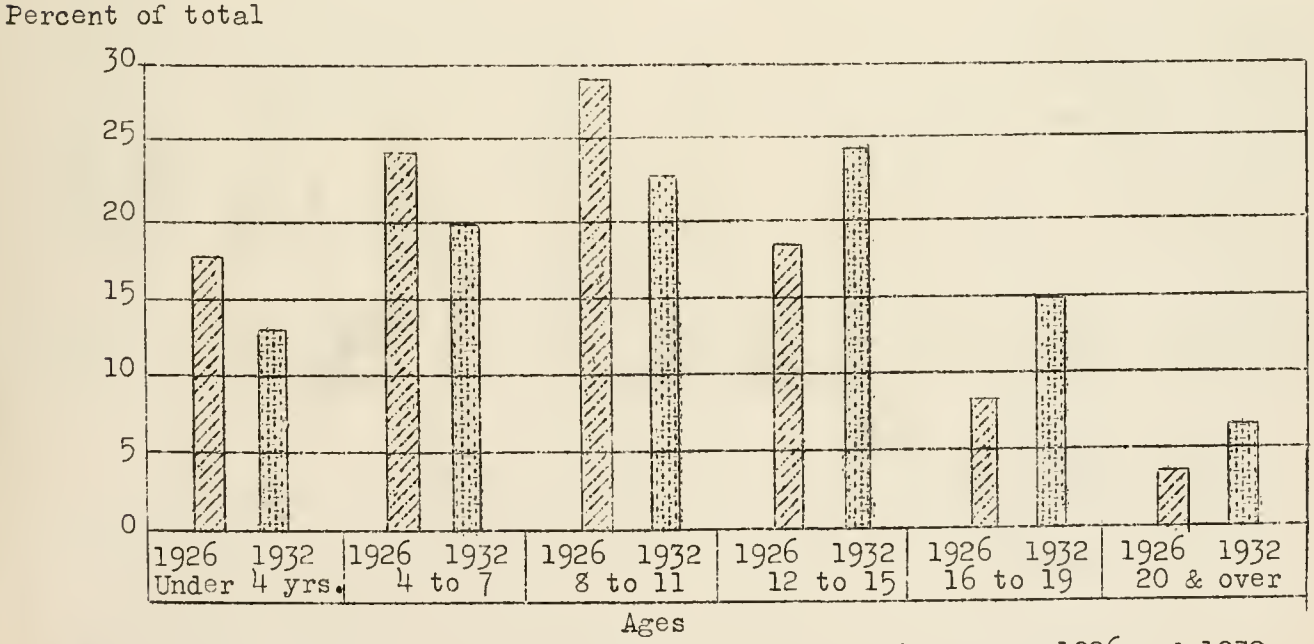

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Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Clinton County for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931, although the average land value was lower in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. Crop yields in 1931 were much higher than for any other year in the last five.

Comparison of Earnings and Investments on Accounting Farms in Clinton County for 1927-1931

Items	1927	1928	1929	1930	1931
Number of farms	35	33	44	36	31
Average size of farms, acres	153	161	167	173	169.8
Average rate earned, to pay for management, risk and capital	4.4%	6.1%	5.8%	1.8%	0.16%
Average labor and management wage	$480	$786	$765	$-47	$-428
Gross income per acre	16.80	19.03	18.55	14.64	9.94
Operating cost per acre	11.90	12.19	11.75	12.54	9.76
Average value of land per acre	69	68	68	67	64
Total investment per acre	112	113	117	116	108
Investment per farm in:					
Total livestock	1755	1995	2099	2252	1863
Cattle	826	1014	1147	1228	1024
Hogs	190	191	190	287	142
Poultry	281	304	278	282	271
Gross income per farm	2574	3067	3098	2539	1688
Income per farm from:					
Crops	97	204	80	---	331
Miscellaneous income	107	113	98	91	96
Total livestock	2370	2750	2920	2448	1261
Cattle	384	406	367	157	30
Dairy sales	1172	1408	1460	1304	734
Hogs	286	314	428	489	164
Poultry	514	608	641	496	325
Average yield of corn in bu.	25	35	31	18	35
Average yield of wheat in bu.	14	4	14	21	28

Investments, Receipts, Expenses, and Earnings on
31 Clinton County Farms, 1931

Items	Your farm	Average of 31 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		10 930	11 549	9 846
Farm improvements		2 695	2 473	2 876
Livestock total	_____	1 863	1 817	1 809
Horses		404	361	421
Cattle		1 024	1 042	952
Hogs		142	127	114
Sheep		22	42	10
Poultry		271	245	312
Machinery and equipment		1 594	1 591	1 569
Feed, grain and supplies		1 328	1 223	1 510
Total capital investment	$_____	$18 410	$18 653	$17 610
RECEIPTS AND NET INCREASES				
Livestock total	_____	1 261	1 484	1 003
Horses		---	---	---
Cattle		30	60	---
Hogs		164	164	113
Sheep		8	27	---
Poultry		54	78	7
Egg sales		271	262	350
Dairy sales		734	893	533
Feed, grain and supplies		331	509	141
Labor off farm		91	181	45
Miscellaneous receipts		5	13	2
Total receipts & net increases	$_____	$ 1 688	$ 2 187	$ 1 191
EXPENSES AND NET DECREASES				
Farm improvements		157	114	200
Horses		26	21	43
Miscellaneous livestock decreases Cattle		---	---	54
Machinery and equipment		201	73	245
Feed, grain and supplies		---	---	---
Livestock expense		20	20	20
Crop expense		212	205	209
Hired labor		174	164	116
Taxes		152	148	152
Miscellaneous expenses		24	20	21
Total expenses & net decreases	$_____	$ 966	$ 765	$ 1 068
RECEIPTS LESS EXPENSES	$_____	$ 722	$ 1 422	$ 131
Total unpaid labor		692	647	768
Operator's labor		462	480	460
Family labor		230	167	308
Net income from investment and management		30	775	-637
RATE EARNED ON INVESTMENT	_____%	.16%	4.15%	-3.62%
Return to capital and operator's labor and management		492	1 255	-177
5% of capital invested		920	933	880
LABOR AND MANAGEMENT WAGE	$_____	$ -428	$ 322	$-1 057

Chart for Studying the Efficiency of Various Parts of Your Business
Clinton County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 31 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

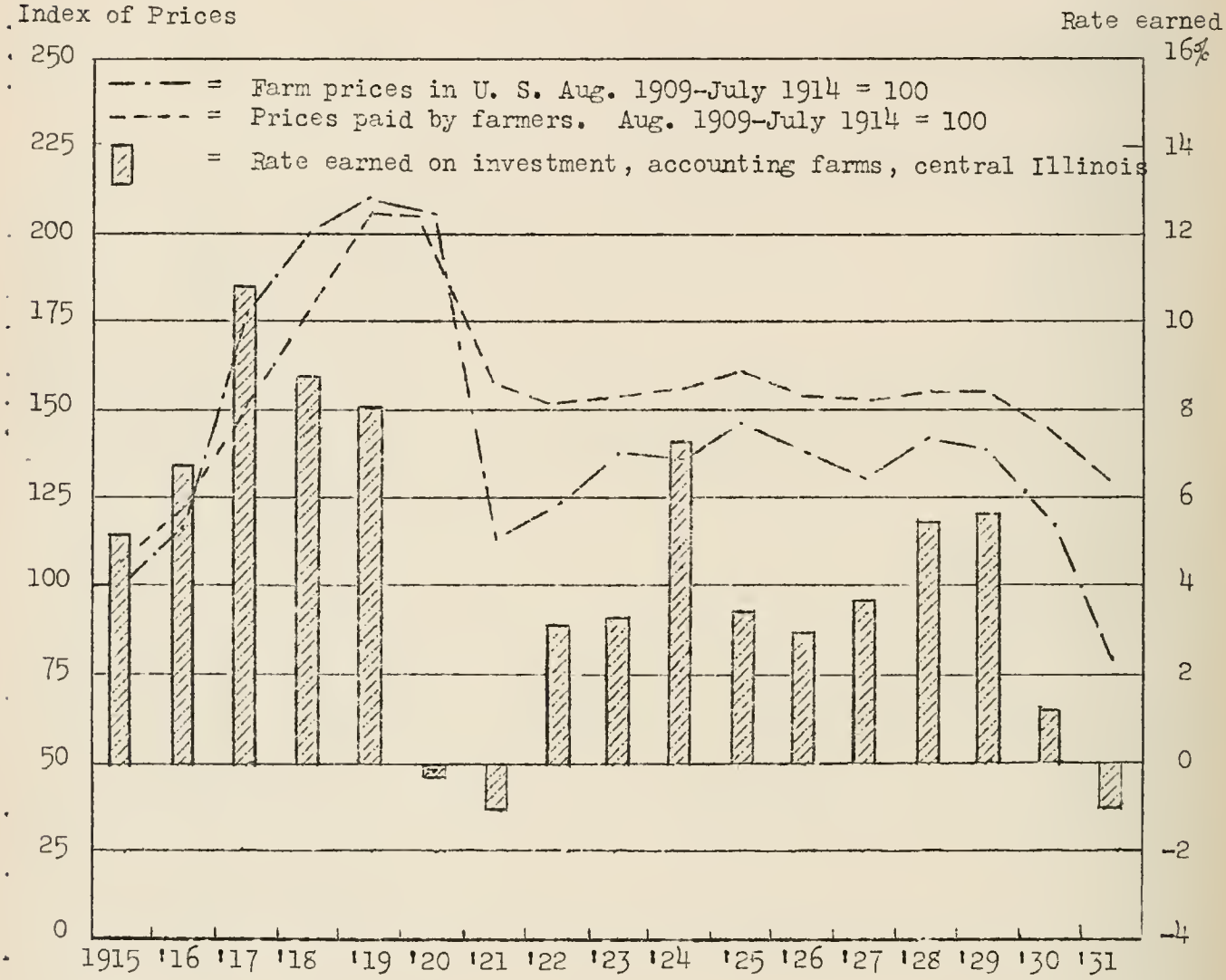
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
7.0	49	51	42	150	265	85	195	125	15	---	15	30	17	3 800	310
6.0	47	49	40	140	245	80	185	120	14	.35	20	40	16	3 500	290
5.0	45	47	38	130	225	75	175	115	13	.85	25	50	15	3 200	270
4.0	43	45	36	120	205	70	165	110	12	1.35	30	60	14	2 900	250
3.0	41	43	34	110	185	65	155	105	11	1.85	35	70	13	2 600	230
2.0	39	41	32	100	165	60	145	100	10	2.35	40	80	12	2 300	210
1.0	37	39	30	90	145	55	135	95	9	2.85	45	90	11	2 000	190
.0	35	37	28	80	125	50	125	90	8	3.35	50	100	10	1 700	170
-1.0	33	35	26	70	105	45	115	85	7	3.85	55	110	9	1 400	150
-2.0	31	33	24	60	85	40	105	80	6	4.35	60	120	8	1 100	130
-3.0	29	31	22	50	65	35	95	75	5	4.85	65	130	7	800	110
-4.0	27	29	20	40	45	30	85	70	4	5.35	70	140	6	500	90
-5.0	25	27	18	30	25	25	75	65	3	5.85	75	150	5	200	70
-6.0	23	25	16	20	5	20	65	60	2	6.35	80	160	4	----	50
-7.0	21	23	14	10	---	15	55	55	1	6.85	85	170	3	----	30

Factors Helping to Analyze the Farm Business on
31 Clinton County Farms in 1931

Items	Your farm	Average of 31 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	____	169.8	171.0	166.5
Percent of land area tillable		87.7	93.2	90.8
Gross receipts per acre	____	9.94	12.79	7.15
Total expenses per acre		9.76	8.26	10.98
Net receipts per acre		.18	4.53	-3.83
Value of land per acre		64	68	59
Total investment per acre		108	109	106
Acres in Corn	____	36.6	38.9	33.6
Oats	____	27.0	26.6	29.0
Wheat	____	43.5	46.7	45.4
Soybeans	____	1.0	1.0	1.7
Crop yields--Corn, bu. per acre	____	34.7	38.3	27.7
Oats, bu. per acre	____	36.7	43.6	24.2
Wheat, bu. per acre	____	28.5	29.8	28.0
Value of feed fed to productive livestock	____	1024	1099	896
Returns per $100 of feed fed to productuve livestock	____	123	135	106
Returns per $100 invested in:				
Cattle	____	78	94	54
Poultry	____	123	136	121
Pigs weaned per litter	____	7.2	6.8	7.2
Income per litter farrowed	____	48	37	33
Dairy sales per dairy cow	____	88	92	80
Investment in productive livestock per acre	____	8.20	8.34	7.78
Receipts from productive livestock per acre	____	7.43	8.68	5.70
Power and machinery cost per crop acre	____	3.35	2.27	3.81
Machinery cost per crop acre	____	1.53	.54	1.89
Value of feed fed to horses	____	214	212	205
Man labor cost per $100 gross income	____	49	33	74
Man labor cost per acre	____	4.89	4.27	5.26
Expenses per $100 gross income	____	98	65	153
Farm improvements cost per acre	____	.92	.67	1.20
Farms with tractor	____	48	50	50
Excess of sales over cash expenses	____	937	1277	670
Decrease in inventory	____	215	145 Inc.	539

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-ONE FARMS IN ST. CLAIR COUNTY, ILLINOIS, 1931

Prepared by P. E. Johnston, R. G. Trummel, and H. C. M. Case*

The average of farm earnings, on account keeping farms in St. Clair County, was lower in 1931 than in 1930. In 1930 the average net income was $155 per farm while in 1931 there was an average loss of $208 per farm. In 1930, however, $945 per farm was deducted for the labor of the operator and the family as compared with $724 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $600 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $1756 in excess of cash expenses as compared with $1116 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the general unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis.

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*B. W. Tillman, farm adviser in St. Clair County, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the St. Clair County farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$1 727		$1 505
Feed, grain and supplies	1 540		1 290
Machinery	1 263		1 250
Improvements	3 124		3 009
Total inventory	7 654		7 054
Decrease in inventory		$ 600	
Total cash sales for 1931		$2 627	
Total cash purchases for 1931		1 511	
Excess of cash sales over cash purchases		1 116	
Decrease in inventory		600	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		516	

There was a decrease in the feed, grain, and supplies inventory in spite of the larger quantity of these supplies on hand at the end of the year. The larger supplies were due to the higher crop yields in 1931. There was also an inventory loss in the livestock account due to the drop in prices.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in St. Clair County. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 31 farms included in this study ranged in size from 72 to 314 acres per farm. Only 4 were smaller than 100 acres and only 1 was larger than 260 acres. The average size for all farms in the group was 163 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms
60 - 99	4
100 - 139	7
140 - 179	7
180 - 219	8
220 - 259	4
260 - 299	0
300 - 339	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 31 farms included in the present study, the value of bare land per acre was $47 to $69 per acre on 8 farms; $70 to $109 on 19 farms, and $110 to $160 on 4 farms. The average value was $81 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $128 per acre.

As previously stated, the average for the 31 farms indicated a loss of $208 per farm after deducting $724 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $774 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the 31 farms in this study failed to return enough to pay for the labor of the operator and the family at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Four of the farms netted their operators incomes of more than $374; while the operators of 4 farms sustained losses of more than $1124. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms[1]	Net income per farm	Number of farms
$624 to $375	3	$-375 to -624	6
374 to 125	9	-625 to -874	2
124 to -124	4	-875 to -1124	0
-125 to -374	2	-1125 to -1374	1
		-1375 to -1624	2

[1] One farm had a net income of $1543 while one farm had a loss of $2030.

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment, gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The farms in the two groups were quite similar from the standpoint of physical characteristics. They averaged about the same size, the more profitable farms having a slightly higher percentage of the land area tillable and also a higher value per acre for land. The total investment per acre, however, was slightly higher on the less profitable farms. In addition, the cropping system was practically the same for the two groups. There was, however, considerable difference in the crop yields. The most profitable farms grew 3.1 bushels more corn, 2.2 bushels more oats, but 4.1 bushels less wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $4 per farm higher than the beginning inventory, while on the less profitable farms it was $392 less than the beginning. There was an increase in the grain account of $492 per farm for the most profitable group, but a loss of $84 for the less profitable farms.

The investment per farm in livestock was $257 less on the more profitable than on the less profitable yet the income was $460 per farm higher and at the same time the increase from the feed and grain account was larger by $576. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $176 for the more profitable farms as compared with $109 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 6.2 pigs weaned per litter on the more profitable farms but only 5.1 on the less profitable farms. Dairy sales were $6 per cow higher and returns per $100 invested in poultry $63 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $14.21 as compared with $7.08 per acre for the least profitable farms.

The average operating expenses for the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $11.22 as compared with $13.33 for the least profitable group. The cost of power and machinery was $1.11 per crop acre lower for the more successful farms, but the man labor cost was the same. The decrease in the farm improvements account was $1.14 per acre higher on the less profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.99 per acre for the more profitable farms as compared with a loss of $6.25 per acre for the less profitable group. For the first group this was a return of 2.36% on the capital invested in the business and for the second group a loss of 4.79%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery and improvements accounts.

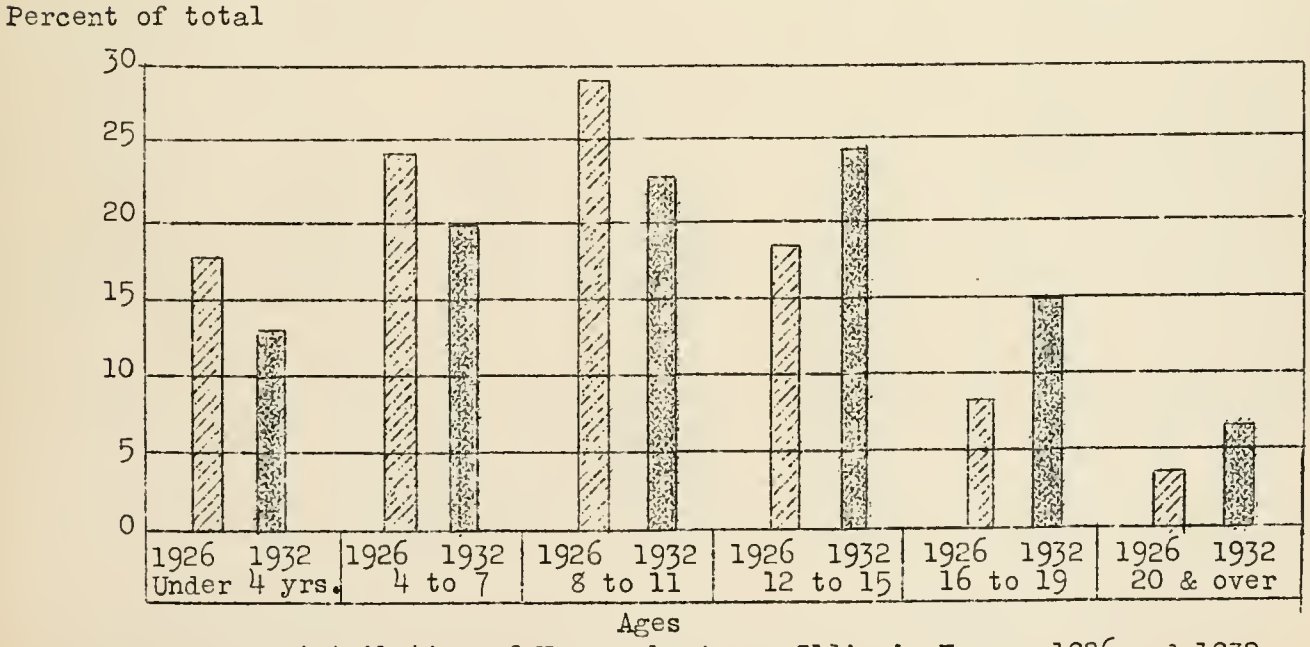
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Four-Year Period

Some comparative investment and earning data on accounting farms in St. Clair County for 1928 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931 despite the fact that the average land value has been reduced slightly each year since 1928. Both the gross income and the operating expense per acre were lower in 1931 than in 1930. The increase from crops was higher and the increase from livestock was lower in 1931 than in 1930. The crop increase was due to higher crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in St. Clair County for 1928-1931

Item	1928	1929	1930	1931
Number of farms	32	31	34	31
Average size of farms, acres	151	158	161	163
Average rate earned, to pay for management, risk and capital	6.3%	6.9%	.7%	-.99%
Average labor and management wage	$874	$1 021	$-365	$-774
Gross income per acre	22.78	23.12	14.68	10.69
Operating cost per acre	13.98	13.61	13.72	11.97
Average value of land per acre	93	88	86	81
Total investment per acre	140	137	139	128
Investment per farm in:				
Total livestock	1 682	1 897	1 949	1 727
Cattle	812	938	1 009	852
Hogs	232	309	305	277
Poultry	181	200	221	188
Gross income per farm	3 448	3 663	2 359	1 741
Income per farm from:				
Crops	1 307	1 286	271	282
Miscellaneous income	43	44	79	36
Total livestock	2 098	2 333	2 009	1 423
Cattle	331	263	114	80
Dairy sales	927	930	894	645
Hogs	395	595	484	285
Poultry	400	521	510	406
Average yield of corn in bu.	52	48	25	36.8
Average yield of wheat in bu.	8	12	20	28.2

Investments, Receipts, Expenses, and Earnings on
31 St. Clair County Farms, 1931

Item	Your farm	Average of 31 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		13 266	12 716	12 321
Farm improvements		3 124	2 524	3 821
Livestock total		1 727	1 537	1 794
Horses		401	357	487
Cattle		852	685	872
Hogs		277	276	220
Sheep		9	10	---
Poultry		188	209	215
Machinery and equipment		1 263	1 068	1 262
Feed, grain and supplies		1 540	1 211	1 540
Total capital investment	$	$20 920	$19 056	$20 738
RECEIPTS AND NET INCREASES				
Livestock total		1 423	1 569	1 109
Horses		---	---	---
Cattle		80	70	---
Hogs		285	279	194
Sheep		7	6	---
Poultry		120	128	121
Egg sales		286	402	252
Dairy sales		645	684	542
Feed, grain and supplies		282	492	---
Labor off farm		33	75	13
Miscellaneous receipts		3	---	3
Total receipts & net increases	$	$ 1 741	$ 2 136	$ 1 125
EXPENSES AND NET DECREASES				
Farm improvements		234	160	349
Horses		24	20	21
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		276	191	282
Feed, grain and supplies		---	---	84
Livestock expense		32	23	46
Crop expense		203	170	188
Hired labor		226	133	204
Taxes		201	202	173
Miscellaneous expenses		29	29	31
Total expenses & net decreases	$	$ 1 225	$ 928	$ 1 378
RECEIPTS LESS EXPENSES	$	$ 516	$ 1 208	$ -253
Total unpaid labor		724	758	740
Operator's labor		480	480	480
Family labor		244	278	260
Net income from investment and management		-208	450	-993
RATE EARNED ON INVESTMENT	%	-.99%	2.36%	-4.79%
Return to capital and operator's labor and management		272	930	-513
5% of capital invested		1 046	953	1 037
LABOR AND MANAGEMENT WAGE	$	$ -774	$ -23	$-1 550

Chart for Studying the Efficiency of Various Parts of Your Business

St. Clair County 1931

The numbers between the lines across the middle of the page are the approximate averages for the 31 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

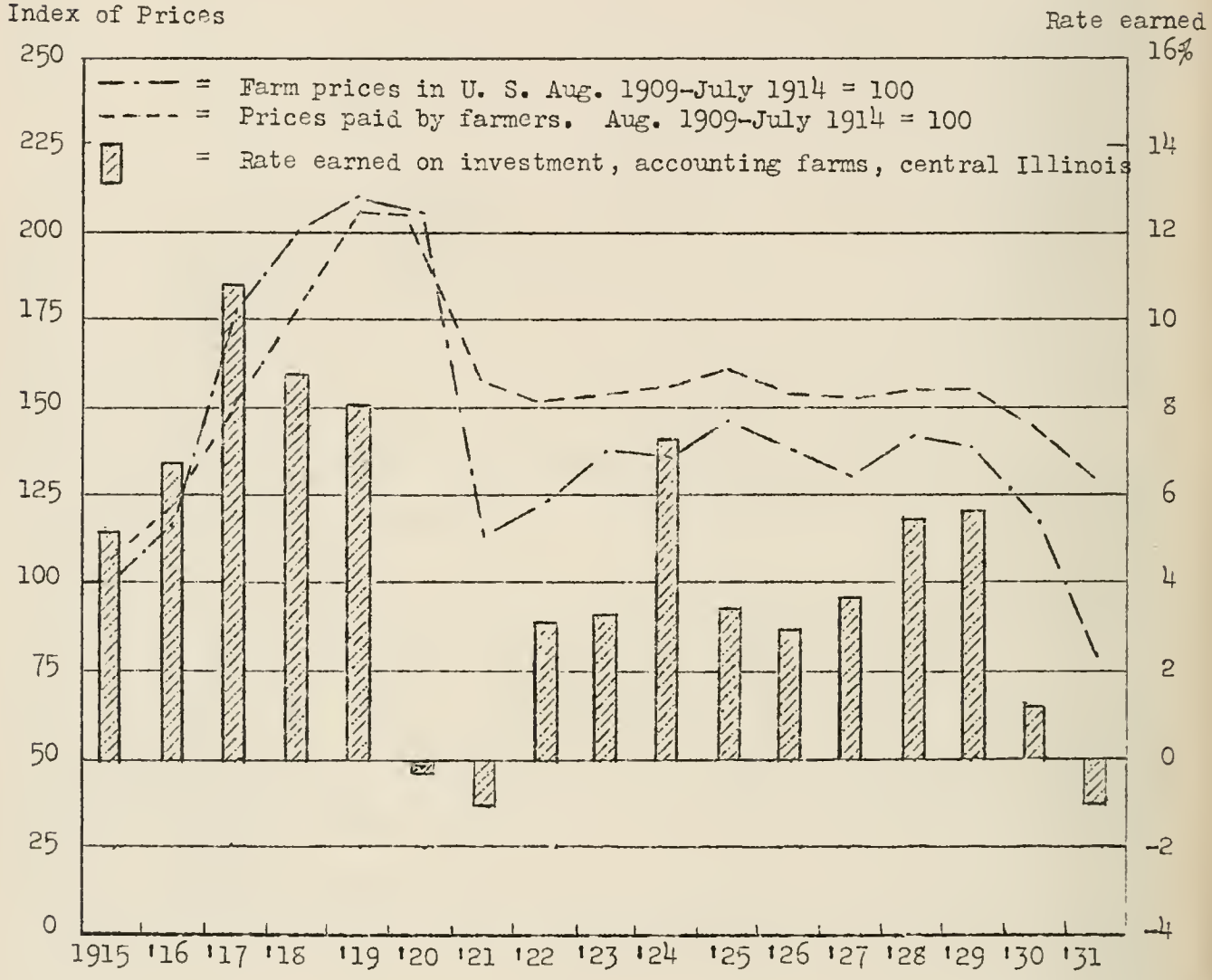
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
6.0	57	67	42	230	360	75	220	160	15	.80	25	77	25	4 500	300
5.0	54	64	40	210	340	70	210	150	14	1.30	29	82	23	4 100	280
4.0	51	61	38	190	320	65	200	140	13	1.80	33	87	21	3 700	260
3.0	48	58	36	170	300	60	190	130	12	2.30	37	92	19	3 300	240
2.0	45	55	34	150	280	55	180	120	11	2.80	41	97	17	2 900	220
1.0	42	52	32	130	260	50	170	110	10	3.30	45	102	15	2.500	200
0.0	39	49	30	110	240	45	160	100	9	3.80	49	107	13	2 100	180
-1.0	36	46	28	90	220	40	150	90	8	4.30	53	112	11	1 700	160
-2.0	33	43	26	70	200	35	140	80	7	4.80	57	117	9	1 300	140
-3.0	30	40	24	50	180	30	130	70	6	5.30	61	122	7	900	120
-4.0	27	37	22	30	160	25	120	60	5	5.80	65	127	5	500	100
-5.0	24	34	20	10	140	20	110	50	4	6.30	69	132	3	100	80
-6.0	21	31	18	--	120	15	100	40	3	6.80	73	137	1	---	60
-7.0	18	28	16	--	100	10	90	30	2	7.30	77	142	--	---	40
-8.0	15	25	14	--	80	5	80	20	1	7.80	81	147	--	---	20

Factors Helping to Analyze the Farm Business on
31 St. Clair County Farms in 1931

Item	Your farm	Average of 31 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	_____	162.8	150.3	158.9
Percent of land area tillable		90.4	91.8	86.3
Gross receipts per acre	_____	10.69	14.21	7.08
Total expenses per acre		11.97	11.22	13.33
Net receipts per acre		-1.28	2.99	-6.25
Value of land per acre		81	85	78
Total investment per acre		128	127	130
Acres in Corn	_____	40.1	36.4	37.4
Oats	_____	18.8	14.8	18.3
Wheat	_____	46.2	48.9	36.3
Soybeans	_____	2.0	2.1	2.2
Crop yields--Corn, bu. per acre	_____	36.8	36.8	33.7
Oats, bu. per acre	_____	46.1	48.8	46.6
Wheat, bu. per acre	_____	28.2	25.3	29.4
Value of feed fed to productive livestock	_____	936	892	1 019
Returns per $100 of feed fed to productive livestock	_____	152	176	109
Returns per $100 invested in:				
Cattle	_____	89	112	71
Poultry	_____	221	252	189
Pigs weaned per litter	_____	5.8	6.2	5.1
Income per litter farrowed	_____	42	50	24
Dairy sales per dairy cow	_____	90	91	85
Investment in productive livestock per acre	_____	7.56	7.38	7.17
Receipts from productive livestock per acre	_____	8.74	10.44	6.98
Power and machinery cost per crop acre	_____	4.26	3.73	4.84
Machinery cost per crop acre	_____	2.19	1.59	2.47
Value of feed fed to horses	_____	237	236	250
Man labor cost per $100 gross income	_____	53	41	83
Man labor cost per acre	_____	5.63	5.82	5.86
Expenses per $100 gross income	_____	112	79	188
Farm improvements cost per acre	_____	1.44	1.06	2.20
Farms with tractor	_____	48%	50%	40%
Excess of sales over cash expenses	_____	1 116	1 420	678
Decrease in inventory	_____	600	212	931

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY FARMS IN RANDOLPH, MONROE AND WASHINGTON COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, R. G. Trummel and H. C. M. Case*

The average of farm earnings, on account keeping farms in Randolph, Monroe and Washington Counties, was lower in 1931 than in 1930. In 1930 the average net income was $55 per farm while in 1931 there was an average loss of $159 per farm. In 1930, however, $855 per farm was deducted for the labor of the operator and the family as compared with $692 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $600 per farm in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $1146 in excess of cash expenses as compared with $804 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up-turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis. Inventory losses were responsible for low earnings on many farms in 1931. The farms with large beginning inventories of feed and livestock suffered more than farms with small inventories.

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*E. C. Secor, C. A. Hughes and L. R. Caldwell, farm advisers in Randolph, Monroe and Washington Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 30 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$1 550	$1 390
Feed, grain and supplies	1 322	1 356
Machinery	1 301	1 204
Improvements	2 664	2 616
Total inventory	$6 837	$6 566
Decrease in inventory		$ 271

Total cash sales for 1931	$2 163
Total cash purchases for 1931	1 359
Excess of cash sales over cash purchases	804
Decrease in inventory	271
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	533

An increase in the feed, grain and supplies inventory is to be noted in spite of the sharp decrease in the value of these products. This is explained by the larger quantity of these supplies on hand, this in turn being due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farms for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Randolph, Monroe and Washington Counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than

for farms included in this accounting service.

The 30 farms included in this study ranged in size from 71 to 345 acres per farm. Two were smaller than 100 acres and one larger than 300 acres. The average size for all farms in the group was 190 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	2	220 - 259	8
100 - 139	4	260 - 299	2
140 - 179	8	300 - 339	0
180 - 219	5	340 - 379	1

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 30 farms included in the present study, the value of bare land per acre was $10 to $49 on 15 farms; $50 to $89 on 11 farms, and $90 to $109 on 3 farms. One farm was valued at $150 per acre while the average value was $51 for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $87 per acre.

As previously stated, the average for all farms indicated a loss of $159 per farm after deducting $692 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $521 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Two of the farms netted their operators incomes of more than $749; while the operators of 3 farms sustained losses of more than $749. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$1 249 to 750	2	$- 250 to - 749	12
749 to 250	7	- 750 to -1 249	1
249 to -249	6	-1 250 to -1 749	2

A comparison of the 10 farms having the highest rate earned on investment with the 10 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 216 acres in size as compared with 173 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 6.9 bushels more corn, 4.1 bushels more oats, and .1 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $339 per farm higher than the beginning inventory, while on the less profitable farms it was $164 less than the beginning inventory.

The investment per farm in livestock was $294 more on the most profitable farms than on the least profitable and the income was $500 per farm higher while at the same time the increases from the feed and grain account was larger by $824. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $174 for the more profitable farms as compared with $111 for the less profitable farms. There were 6.7 pigs weaned per litter on the more profitable farms but only 5.9 on the less profitable farms. Dairy sales were $4 per cow higher and returns per $100 invested in poultry $20 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $10.24 as compared with $5.19 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $7.81 as compared with $9.75 for the least profitable group. The cost of power and machinery was 92 cents per crop acre lower for the more successful farms, and the man labor cost was 90 cents an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.43 per acre for the more profitable farms as compared with a loss of $4.56 per acre for the less profitable group. For the first group this was a return of 3.10% on the capital invested in the business and for the second group a loss of 5.74%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

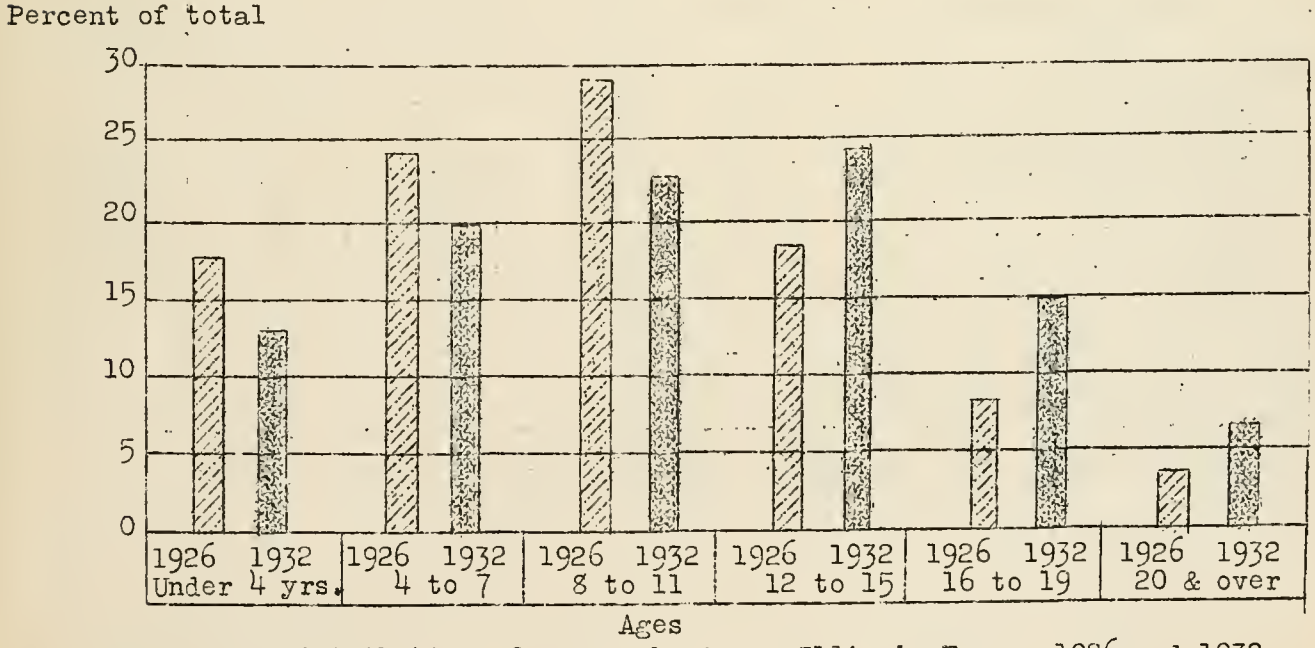
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in Randolph, Monroe and Washington Counties for 1927 to 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. Earnings in this area dropped much less, however, in 1931 than for most of the rest of the state, due in part to the smaller decline in inventory values.

Comparison of Earnings and Investments on Accounting Farms in Randolph, Monroe and Washington Counties for 1927-1931

Items	1927[1]	1928	1929	1930	1931
Number of farms	36	27	30	32	30
Average size of farms, acres	172	200	179	190	190
Average rate earned, to pay for management, risk and capital	4.0%	5.0%	5.4%	0.3%	-1.0%
Average labor and management wage	$383	$601	$641	$-237	$-521
Gross income per acre	15.68	13.86	15.80	10.25	8.44
Operating cost per acre	11.15	9.28	10.57	9.96	9.28
Average value of land per acre	72	58	58	53	51
Total investment per acre	114	91	97	94	87
Investment per farm in:					
Total livestock	1734	1486	1578	1834	1550
Cattle	712	635	730	963	809
Hogs	295	215	203	212	164
Poultry	167	189	202	220	193
Gross income per farm	2691	2778	2828	1945	1601
Income per farm from:					
Crops	816	976	730	259	382
Miscellaneous income	88	82	39	49	30
Total livestock	1787	1720	2059	1637	1189
Cattle	271	223	229	140	56
Dairy sales	806	715	750	716	546
Hogs	400	307	491	321	240
Poultry	258	445	573	444	336
Average yield of corn in bu.	37	39	42	19	31
Average yield of wheat in bu.	11	11	12	20	27

1/Some records from St. Clair county were included for 1927.

Investments, Receipts, Expenses, and Earnings on 30 Randolph, Monroe and Washington County Farms, 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
CAPITAL INVESTMENTS				
Land		9 631	10 786	7 817
Farm improvements		2 664	2 281	2 608
Livestock total		1 550	1 443	1 149
Horses		349	336	296
Cattle		809	735	471
Hogs		164	158	178
Sheep		35	17	68
Poultry		193	197	136
Machinery and equipment		1 301	1 385	958
Feed, grain and supplies		1 322	1 089	1 202
Total capital investment	$	$16 468	$16 984	$13 734
RECEIPTS AND NET INCREASES				
Livestock total		1 189	1 285	785
Horses		---	---	---
Cattle		56	84	2
Hogs		240	253	208
Sheep		11	14	4
Poultry		94	106	111
Egg sales		242	308	147
Dairy sales		546	520	313
Feed, grain and supplies		382	908	84
Labor off farm		22	16	25
Miscellaneous receipts		8	6	4
Total receipts & net increases	$	$ 1 601	$ 2 215	$ 898
EXPENSES AND NET DECREASES				
Farm improvements		168	141	228
Horses		57	28	64
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		278	284	226
Feed, grain and supplies		---	---	---
Livestock expense		26	9	27
Crop expense		211	235	166
Hired labor		146	154	150
Taxes		156	161	140
Miscellaneous expenses		26	28	25
Total expenses & net decreases	$	$ 1 068	$ 1 040	$ 1 026
RECEIPTS LESS EXPENSES	$	$ 533	$ 1 175	$ -128
Total unpaid labor		692	649	660
Operator's labor		461	448	456
Family labor		231	201	204
Net income from investment and management		-159	526	-788
RATE EARNED ON INVESTMENT	%	-.97%	3.10%	-5.74%
Return to capital and operator's labor and management		302	974	-332
5% of capital invested		823	849	687
LABOR AND MANAGEMENT WAGE	$	$ -521	$ 125	$-1 019

Chart for Studying the Efficiency of Various Parts of Your Business
Randolph, Monroe and Washington Counties 1931

The numbers between the lines across the middle of the page are the approximate averages for the 30 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

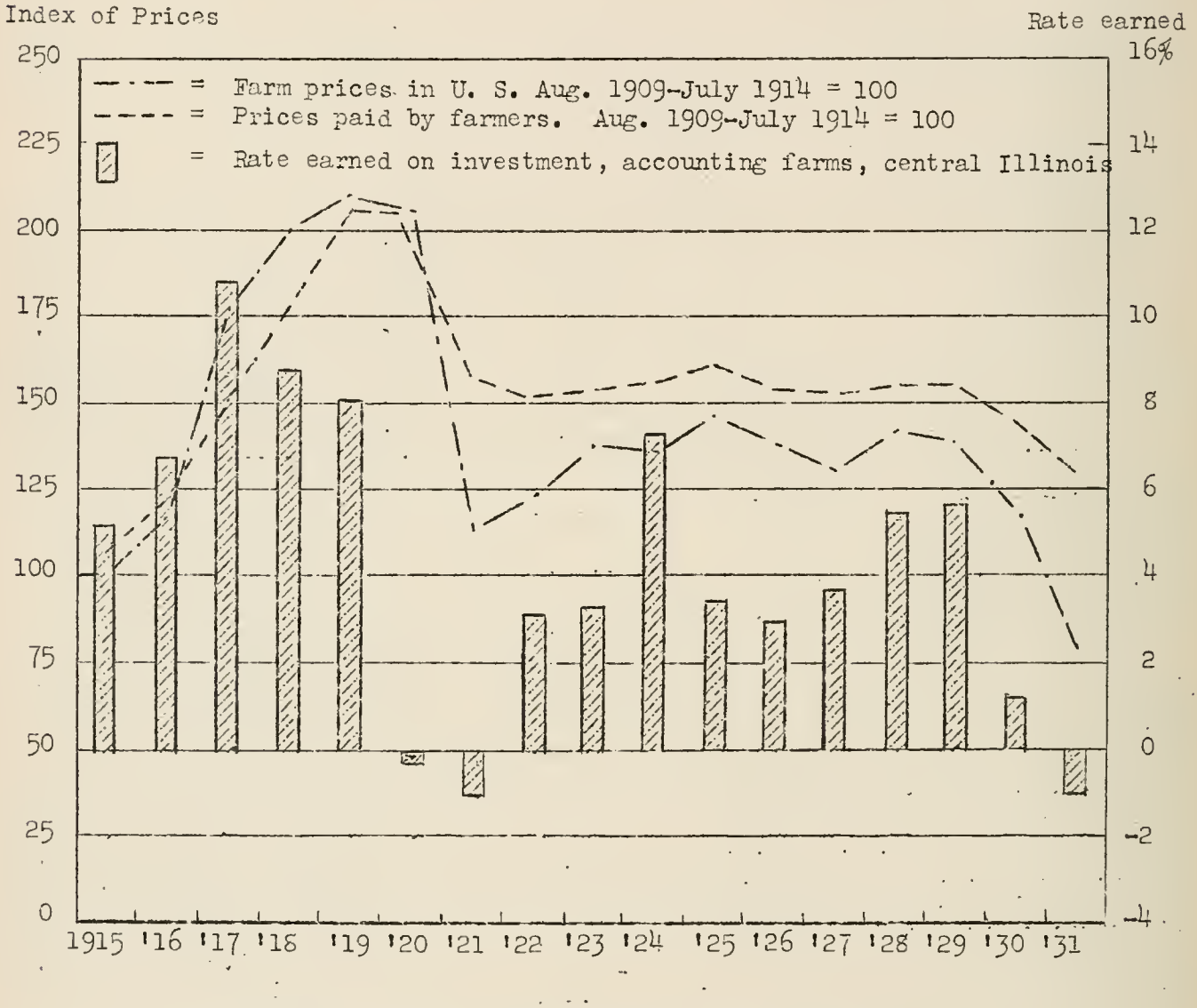
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs--income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
	Corn	Oats	Wheat	Cattle	Poultry						Man labor	Operating expense	Per acre	Per farm	
6.0	45	57	41	110	250	85	215	105	13	.50	29	40	15	3 700	330
5.0	43	55	39	105	240	80	205	100	12	1.00	32	50	14	3 400	310
4.0	41	53	37	100	230	75	195	95	11	1.50	35	60	13	3 100	290
3.0	39	51	35	95	220	70	185	90	10	2.00	38	70	12	2 800	270
2.0	37	49	33	90	210	65	175	85	9	2.50	41	80	11	2 500	250
1.0	35	47	31	85	200	60	165	80	8	3.00	44	90	10	2 200	230
0.0	33	45	29	80	190	55	155	75	7	3.50	47	100	9	1 900	210
-1.0	31	43	27	75	180	50	145	70	6	4.00	50	110	8	1 600	190
-2.0	29	41	25	70	170	45	135	65	5	4.50	53	120	7	1 300	170
-3.0	27	39	23	65	160	40	125	60	4	5.00	56	130	6	1 000	150
-4.0	25	37	21	60	150	35	115	55	3	5.50	59	140	5	700	130
-5.0	23	35	19	55	140	30	105	50	2	6.00	62	150	4	400	110
-6.0	21	33	17	50	130	25	95	45	1	6.50	65	160	3	100	90
-7.0	19	31	15	45	120	20	85	40	0	7.00	68	170	2	---	70
-8.0	17	29	13	40	110	15	75	35	---	7.50	71	180	1	---	50

Factors Helping to Analyze the Farm Business on
30 Randolph, Monroe and Washington County Farms in 1931

Items	Your farm	Average of 30 farms	10 most profitable farms	10 least profitable farms
Size of farm--acres	____	189.6	216.4	172.9
Percent of land area tillable		81.0	79.9	78.0
Gross receipts per acre	____	8.44	10.24	5.19
Total expenses per acre		9.28	7.81	9.75
Net receipts per acre		-.84	2.43	-4.56
Value of land per acre		51	50	45
Total investment per acre		87	78	79
Acres in Corn	____	32.1	32.6	29.2
Oats	____	19.4	22.8	19.4
Wheat	____	53.0	62.0	45.6
Soybeans	____	1.4	1.6	.6
Crop yields--Corn, bu. per acre	____	31.1	35.0	28.1
Oats, bu. per acre	____	42.7	41.2	37.1
Wheat, bu. per acre	____	27.4	26.1	26.0
Value of feed fed to productive livestock	____	812	738	710
Returns per $100 of feed fed to productive livestock	____	146	174	111
Returns per $100 invested in:				
Cattle	____	77	79	75
Poultry	____	178	202	182
Pigs weaned per litter	____	6.5	6.7	5.9
Income per litter farrowed	____	52	56	32
Dairy sales per dairy cow	____	71	62	58
Investment in productive livestock per acre	____	6.02	5.23	4.35
Receipts from productive livestock per acre	____	6.27	5.94	4.54
Power and machinery cost per crop acre	____	4.06	3.29	4.21
Machinery cost per crop acre	____	2.16	1.92	2.04
Value of feed fed to horses	____	187	175	176
Man labor cost per $100 gross income	____	51	36	87
Man labor cost per acre	____	4.30	3.64	4.54
Expenses per $100 gross income	____	110	76	188
Farm improvements cost per acre	____	.89	.65	1.32
Farms with tractor	____	50%	70%	30%
Excess of sales over cash expenses	____	804	948	530
Decrease in inventory	____	271	227 Inc.	658

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON SIXTY-TWO FARMS IN SOUTHERN, ILLINOIS, 1931

Prepared by P. E. Johnston, R. G. Trummell, and H. C. M. Case*

The average of farm earnings, on account keeping farms in Southern Illinois, was no lower in 1931 than in 1930. In 1930 the average net loss was $359 per farm while in 1931 there was an average loss of $180 per farm. In 1930, however, $751 per farm was deducted for the labor of the operator and the family as compared with $704 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $600 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $814 in excess of cash expenses as compared with $633 in 1931. The decrease in inventory was greater in 1930 than in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis.

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*C. E. Twigg, C. S. Love, F. J. Blackburn, C. L. Beatty, J. G. McCall, A. J. Andrews, L. L. Corrie, L. J. Fultz, Dee Small, and E. E. Glick, farm advisers, in Jefferson, Clay, Marion, Richland, Jackson, Pope, Wayne, Johnson, Williamson, and Franklin Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 62 farms for 1931:

	Beginning inventory January 1, 1931		Ending inventory December 31, 1931
Total livestock	$1 545		$1 456
Feed, grain and supplies	861		928
Machinery	984		940
Improvements	1 988		1 945
Total inventory	5 378		5 269
Decrease in inventory		$ 109	
Total cash sales for 1931		$1 691	
Total cash purchases for 1931		1 058	
Excess of cash sales over cash purchases		633	
Decrease in inventory		109	
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)		524	

An increase in the feed, grain, and supplies inventory is to be noted in spite of the sharp decrease in the value of these products. This is explained by the larger quantity of these supplies on hand, this in turn being due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in Southern Illinois. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas

have shown that average earnings for all farms are lower than for farms included in this accounting service.

The farms included in this study ranged in size from 60 to 544 acres per farm. Six were smaller than 100 acres and 11 were larger than 300 acres. The average size for all farms in the group was 207 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	6	260 - 299	3
100 - 139	10	300 - 339	4
140 - 179	14	340 - 379	2
180 - 219	9	380 - 419	2
220 - 259	9	420 - 459	1
		460 - 599	2

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 62 farms included in the present study, the value of bare land per acre was $10 to $29 per acre on 28 farms; $30 to $49 on 28 farms, and $50 to $69 on 6 farms. The average value was $32 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $58 per acre.

As previously stated, the average for the 62 farms indicated a loss of $180 per farm after deducting $704 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $309 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Three of the farms netted their operators incomes of more than $875; while the operators of 6 farms sustained losses of more than $875. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms[1]	Net income per farm	Number of farms
$1124 to $875	2	$-125 to -374	9
874 to 625	2	-375 to -624	10
624 to 375	3	-625 to -874	8
374 to 125	9	-875 to -1124	2
124 to -124	12	-1125 to -1374	2
		-1375 to -1624	1

1/One farm had an income of $1420 while one farm had a loss of $1648.

A comparison of the 20 farms having the highest rate earned on investment with the 20 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 207 acres in size as compared with 172 for the less profitable group. The larger farms had a higher percentage of the land area tillable and also a higher value per acre for the bare land. The total investment per acre, however, was exactly the same for both groups. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 4.8 bushels more corn, 3.5 bushels more oats, and 2.6 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $174 per farm higher than the beginning inventory, while on the less profitable farms it was $60 less than the beginning.

The investment per farm in livestock was $336 more on the most profitable farms than on the least profitable and the income was $546 per farm higher while at the same time the increase from the feed and grain account was larger by $395. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $194 for the more profitable farms as compared with $120 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 7.8 pigs weaned per litter on the more profitable farms but only 6 on the less profitable farms. Dairy sales were $3 per cow higher and returns per $100 invested in poultry $96 higher on the more profitable farms. The larger crop yields and more efficient livestock on the more profitable farms resulted in gross receipts per acre of $7.84 as compared with $4.20 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $5.75 as compared with $8.65 for the least profitable group. The cost of power and machinery was $1.66 per crop acre lower for the more successful farms, and the man labor cost was $1.07 an acre lower. Both the investment per farm and the expense per acre for improvements were also lower for the more profitable farms. The less profitable farms had a loss of $61 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

After deducting expenses and net decreases from income and net increases there remained a net increase of $2.09 per acre for the more profitable farms as compared with a loss of $4.45 per acre for the less profitable group. For the first group this was a return of 3.76% on the capital invested in the business and for the second group a loss of 8.01%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, labor and improvements accounts.

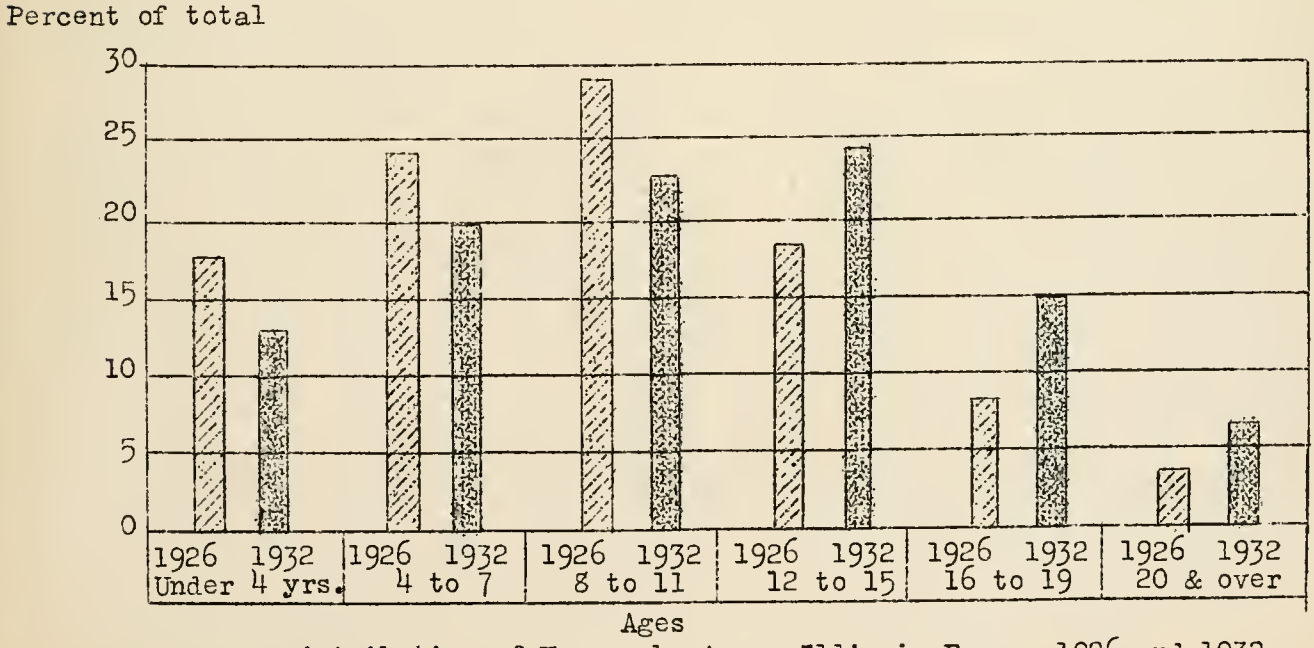
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Vatiations in Earnings Over Three-Year Period

Some comparative investment and earning data on accounting farms in southern Illinois for 1929, 1930 and 1931 are shown in the following table. The rate earned dropped sharply in 1930 but was not so low in 1931. The average land value was $5 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The increase from crops was higher and the increase from livestock was lower in 1931 than in 1930. The crop increase was due to superior crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in Southern Illinois for 1929-1931

Items	1929[1]	1930[1]	1931
Number of farms	46	34	62
Average size of farms, acres	181	181	207
Average rate earned, to pay for management, risk and capital	4.9	-3.0	-1.5
Average labor and management wage	$584	$-382	$-309
Gross income per acre	11.20	6.84	6.16
Operating cost per acre	7.94	8.83	7.03
Average value of land per acre	37	37	32
Total investment per acre	67	67	58
Investment per farm in:			
Total livestock	1539	1604	1545
Cattle	777	771	809
Hogs	102	163	146
Poultry	206	201	165
Gross income per farm	2028	1237	1274
Income per farm from:			
Crops	380	---	239
Miscellaneous income	79	57	90
Total livestock	1569	1180	945
Cattle	316	101	145
Dairy sales	424	348	314
Hogs	272	316	206
Poultry	484	398	264
Average yield of corn in bu.	28	12	31
Average yield of wheat in bu.	12	16	29

1/Records from Edwards, Jefferson, Clay, Marion, Richland and Wayne Counties included in 1929 and 1930.

Investments, Receipts, Expenses, and Earnings on
62 Farms in Southern Illinois, 1931

Items	Your farm	Average of 62 farms	20 most profitable farms	20 least profitable farms
CAPITAL INVESTMENTS				
Land		6 666	6 674	4 920
Farm improvements		1 988	1 673	1 876
Livestock total		1 545	1 552	1 216
Horses		343	344	276
Cattle		809	860	631
Hogs		146	103	123
Sheep		82	57	45
Poultry		165	188	141
Machinery and equipment		984	865	853
Feed, grain and supplies		861	711	705
Total capital investment	$	$12 044	$11 475	$ 9 570
RECEIPTS AND NET INCREASES				
Livestock total		945	1 212	666
Horses		---	2	---
Cattle		145	238	40
Hogs		206	226	117
Sheep		16	23	13
Poultry		79	104	34
Egg sales		185	274	103
Dairy sales		314	345	359
Feed, grain and supplies		239	334	---
Labor off farm		60	63	49
Miscellaneous receipts		30	10	9
Total receipts & net increases	$	$ 1 274	$ 1 619	$ 724
EXPENSES AND NET DECREASES				
Farm improvements		132	84	135
Horses		13	---	11
Miscellaneous livestock decreases		---	---	---
Machinery and equipment		150	50	182
Feed, grain and supplies		---	---	61
Livestock expense		10	9	11
Crop expense		167	126	125
Hired labor		126	98	91
Taxes		132	129	116
Miscellaneous expenses		20	20	22
Total expenses & net decreases	$	$ 750	$ 516	$ 754
RECEIPTS LESS EXPENSES	$	$ 524	$ 1 103	$ -30
Total unpaid labor		704	671	736
Operator's labor		473	480	480
Family labor		231	191	256
Net income from investment and management		-180	432	-766
RATE EARNED ON INVESTMENT	%	-1.49%	3.76%	-8.01%
Return to capital and operator's labor and management		293	912	-286
5% of capital invested		602	574	478
LABOR AND MANAGEMENT WAGE	$	$ -309	$ 338	$ -764

Chart for Studying the Efficiency of Various Parts of Your Business
Southern Illinois, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 62 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

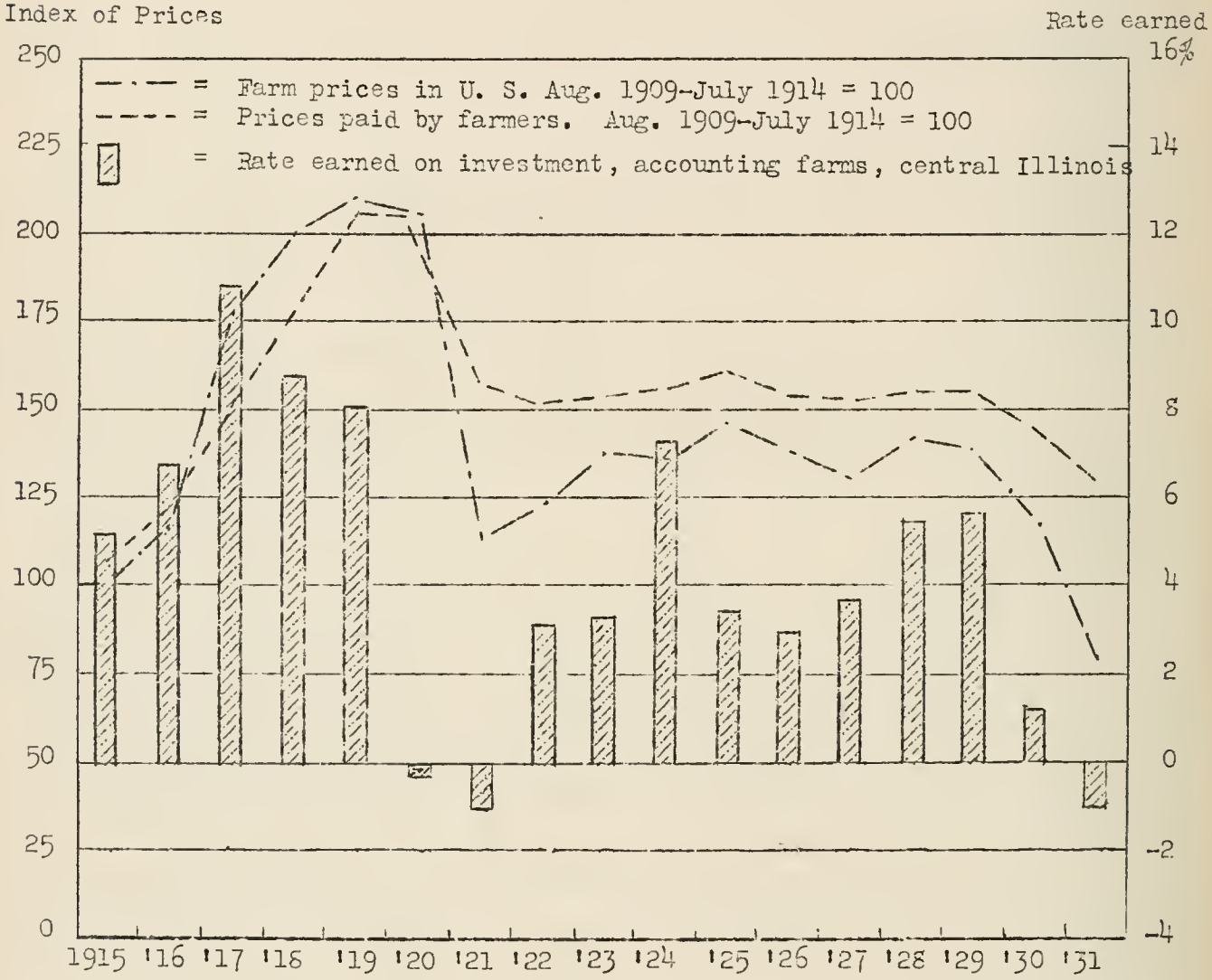
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in live-stock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expenses	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
5.5	45	48	43	127	306	83	223	83	13	1.10	25	44	13	2 700	347
4.5	43	46	41	117	286	78	213	78	12	1.20	30	54	12	2 500	327
3.5	41	44	39	107	266	73	203	73	11	1.30	35	64	11	2 300	307
2.5	39	42	37	97	246	68	193	68	10	1.40	40	74	10	2 100	287
1.5	37	40	35	87	226	63	183	63	9	1.50	45	84	9	1 900	267
0.5	35	38	33	77	206	58	173	58	8	1.60	50	94	8	1 700	247
-0.5	33	36	31	67	186	53	163	53	7	1.70	55	104	7	1 500	227
-1.5	31	34	29	57	166	48	153	48	6	1.80	60	114	6	1 300	207
-2.5	29	32	27	47	146	43	143	43	5	1.90	65	124	5	1 100	187
-3.5	27	30	25	37	126	38	133	38	4	2.00	70	134	4	900	167
-4.5	25	28	23	27	106	33	123	33	3	2.10	75	144	3	700	147
-5.5	23	26	21	17	86	28	113	28	2	2.20	80	154	2	500	127
-6.5	21	24	19	7	66	23	103	23	1	2.30	85	164	1	300	107
-7.5	19	22	17	--	46	18	93	18	0	2.40	90	174	0	100	87
-8.5	17	20	15	--	26	13	83	13	--	2.50	95	184	--	---	67

Factors Helping to Analyze the Farm Business on 62 Farms in Southern Illinois in 1931

Items	Your farm	Average of 62 farms	20 most profitable farms	20 least profitable farms
Size of farm--acres	____	206.8	206.6	172.3
Percent of land area tillable		82.4	88.4	75.4
Gross receipts per acre	____	6.16	7.84	4.20
Total expenses per acre		7.03	5.75	8.65
Net receipts per acre		-.87	2.09	-4.45
Value of land per acre		32	32	29
Total investment per acre		58	56	56
Acres in Corn	____	37.7	39.1	31.1
Oats	____	16.1	16.8	15.7
Wheat	____	19.4	11.0	19.3
Soybeans	____	3.1	4.7	1.4
Crop yields--Corn, bu. per acre	____	30.9	32.1	27.3
Oats, bu. per acre	____	34.1	35.7	32.2
Wheat, bu. per acre	____	29.1	27.8	25.2
Value of feed fed to productive livestock	____	616	624	557
Returns per $100 of feed fed to productive livestock	____	153	194	120
Returns per $100 invested in:				
Cattle	____	57	66	68
Poultry	____	166	204	108
Pigs weaned per litter	____	6.7	7.8	6.0
Income per litter farrowed	____	48	56	35
Dairy sales per dairy cow	____	48	51	48
Investment in productive livestock per acre	____	5.62	5.97	5.00
Receipts from productive livestock per acre	____	4.57	5.86	3.87
Power and machinery cost per crop acre	____	1.82	1.45	3.11
Machinery cost per crop acre	____	1.21	.39	1.76
Value of feed fed to horses	____	64	137	130
Man labor cost per $100 gross income	____	60	44	107
Man labor cost per acre	____	3.72	3.45	4.52
Expenses per $100 gross income	____	114	73	206
Farm improvements cost per acre	____	.64	.41	.78
Farms with tractor	____	47%	30%	45%
Excess of sales over cash expenses	____	633	815	384
Decrease in inventory	____	109	Inc.288	414

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

ANNUAL FARM BUSINESS REPORT ON THIRTY-NINE FARMS IN WHITE, WABASH, EDWARDS, GALLATIN AND SALINE COUNTIES, ILLINOIS, 1931

Prepared by P. E. Johnston, H. G. Russell and H. C. M. Case*

The average of farm earnings, on account keeping farms in this area, was lower in 1931 than in 1930. In 1930 the average net loss was $222 per farm while in 1931 there was an average loss of $551 per farm. In 1930, however, $806 per farm was deducted for the labor of the operator and the family as compared with $640 for 1931. The value of unpaid labor is estimated on the basis of average wages for hired labor, so that the deduction for full-time operators was $600 per year in 1930 and $480 per year in 1931. In 1930 the average farm had cash sales of $1036 in excess of cash expenses as compared with $788 in 1931.

For the state as a whole earnings were materially lower in 1931 than in 1930 while earnings in 1930 were lower than for any year since 1921. A survey of 113 farms located in Gridley Township, McLean County, revealed the fact that for 1931 the average farm in that area sustained a net loss of $489 per farm, which was equivalent to a loss of 1.02% on the $47,980 invested in the business.

The decrease in earnings was due to the drastic slump in the general price level of all commodities which was accompanied by an even more drastic slump in the prices of farm products. It is characteristic of periods of rapid decline in the general price level that prices of farm products decrease faster than prices of manufactured goods. In like manner farm prices recover first on an up turn in the general level. The drop in farm prices has not been due to over-production since the total production of agricultural products in this country has not increased during the last five years while the population has increased 7%. The effective demand for agricultural products has been low during 1931 both at home and abroad. In this country there was a decline of 50% in the amount of money paid city workers as compared with the year 1929. Since city workers had so little money to spend, farm products were taken from the market at ruinously low prices. The foreign demand for farm products was also low due to the generally unsettled economic conditions which prevail all over the world at the present time.

The decline in the price of farm products influences farm account records in two ways: the value of products sold during the year is reduced and the inventory value of livestock and grains is less at the end of the year than at the beginning. In a period of declining prices earnings appear lower when inventory values are taken into account than when calculated solely on a cash basis.

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*C. W. Simpson, H. H. Lett, W. D. Murply, H. C. Neville, and J. E. Whitchurch farm advisers in White, Wabash, Edwards, Gallatin, and Saline Counties, cooperated in supervising and collecting the records on which this report is based.

The following table shows the inventory changes (with exception of land), cash sales, and cash expenses for the 39 farms for 1931:

	Beginning inventory January 1, 1931	Ending inventory December 31, 1931
Total livestock	$1 600	$1 295
Feed, grain and supplies	1 234	1 002
Machinery	1 091	1 014
Improvements	2 499	2 414
Total inventory	6 424	5 725
Decrease in inventory		$ 699

Total cash sales for 1931	$2 173
Total cash purchases for 1931	1 385
Excess of cash sales over cash purchases	788
Decrease in inventory	699
Increase for the year (see "Receipts less expenses" at bottom of table, page 7)	89

A decrease in the feed, grain, and supplies inventory is to be noted in spite of the larger quantity of these supplies on hand at the end of the year. The larger supply was due to the higher crop yields in 1931.

Other industries than farming suffered a slump in 1931. The earnings of a group of 900 industrial corporations reported by the National City Bank of New York showed in 1931 a decline of 53% from 1930 and a decline of 72% from 1929. The average rate of return on the capital invested in these corporations was 13.4% in 1929, 7.1% in 1930, and 3.3% in 1931. The small volume of business done by these corporations in 1931 had a detrimental effect on the demand for farm products. In like manner the small volume of machinery, building materials, and clothing purchased by farmers in 1931 had a detrimental effect on the volume of business done by these corporations. A rapid decline in the general price level brings about maladjustments which are painful to all parties concerned.

In comparing the earnings of farms with the earnings of corporations, two differences must be kept in mind: (1) corporations pay for management through their salaries to officers and executives while in the farm accounts no deduction has been made for the value of management, and (2) the farmer and his family receive foods, fuel, and shelter from the farm for which no credit is given in the calculation of rate earned on investment.

Although no record was kept of the value of food and fuel used by the farm families on the farms included in this report, such data are collected annually for a group of central Illinois farms. An analysis of these records indicates that the average farm furnishes the farm family with $400 to $500 worth of food and fuel a year valued at farm prices. In addition, the cost for a house of equal value is less on the farm than in the city.

The results from this study of farm accounts must not be used to represent average farm conditions in White, Wabash, Edwards, Gallatin and Saline Counties. The number of farms studied is small, and as a rule only the more progressive farmers will enroll in an accounting project. Repeated studies of earnings in selected areas have shown that average earnings for all farms are lower than for farms included in this accounting service.

The 39 farms included in this study ranged in size from 85 to 380 acres per farm. Only one was smaller than 100 acres and only 6 were larger than 300 acres. The average size of all farms in the group was 205 acres. The following table indicates the number of farms in the different size-groups.

Acres per farm	Number of farms	Acres per farm	Number of farms
60 - 99	1	260 - 299	5
100 - 139	10	300 - 339	3
140 - 179	7	340 - 379	2
180 - 219	5	380 - 419	1
220 - 259	5		

Since the efficiency of the farms in this study is judged by the rate earned on the capital invested in the business, it is important to know how the land has been valued. Effort is made to value the farms on a comparable basis, those having the better grades of land being valued higher than those having inferior soils. When these values are comparable, variations in rate earned on investment really represent variations in the efficiency of the managers. Of the 39 farms included in the present study, the value of bare land per acre was $10 to $49 per acre on 16 farms; $50 to $89 on 13 farms, and $90 to $129 on 10 farms. The average value was $61 per acre for the bare land. The average investment, including land, improvements, livestock, machinery and grain, was $93 per acre.

As previously stated, the average for the 39 farms indicated a loss of $551 per farm after deducting $640 for the labor of the operator and the family. This left no return for the use of capital invested in the business. A second method of computing earnings is to deduct 5% of the investment as pay for the use of capital and assume that the remaining income is pay for the operator's labor and management. Following this plan it was found that the average farm operator of this group lacked $1032 of having enough income to pay 5% on the investment and received nothing for his labor or management.

Variation in Earnings from Farm to Farm

Although, on an average, the farms in this study failed to return enough to pay for the operator's labor at hired man's wages and returned nothing for the use of the capital invested in the business, there was considerable variation among the farms in this respect. Two of the farms netted their operators incomes of more than $374; while the operators of five farms sustained losses of more than $1124. The distribution of the farms on the basis of the net income per farm is shown in the following table:

Net income per farm	Number of farms	Net income per farm	Number of farms
$624 to 375	2	-625 to -874	7
374 to 125	1	-875 to -1124	6
124 to -124	7	-1125 to -1374	2
-125 to -374	5	-1375 to -1624	2
-375 to -624	6	-1625 to -1874	1

A comparison of the 13 farms having the highest rate earned on investment with the 13 farms having the lowest rate earned on investment gives a further picture of the variation in returns per farm. The averages for these two groups are found on pages 7 and 9.

The more profitable farms averaged 185 acres in size as compared with 207 for the less profitable group. The smaller farms had a slightly higher percentage of the land area tillable and a much higher value per acre for the bare land. The cropping system was practically the same for the two groups, but there was considerable difference in the crop yields. The most profitable farms grew 5.2 bushels more corn, 9.4 bushels more oats, and 2.8 bushels more wheat per acre than did the least profitable farms. The larger crop production on the more profitable farms accounted for the fact that the closing inventory of feed and grain was $82 per farm higher than the beginning inventory, while on the less profitable farms it was $345 less than the beginning.

The investment per farm in livestock was $164 less on the most profitable farms than on the least profitable but the income was $284 per farm higher while at the same time the increase from the feed and grain account was larger by $480. This difference in livestock efficiency is further illustrated by the fact that the returns per $100 of feed fed were $137 for the more profitable farms as compared with $104 for the less profitable farms. All classes of livestock shared in the increased income due to the higher efficiency. There were 6.6 pigs weaned per litter on the more profitable farms but only 6.2 on the less profitable farms. Dairy sales were $21 per cow higher and returns per $100 invested in poultry $37 higher on the more profitable farms. The larger crop yields and more efficient livestock on the most profitable farms resulted in gross receipts per acre of $8.52 as compared with $5.35 per acre for the least profitable farms.

The average operating expenses of the two groups of farms showed considerable difference. The average expense per acre for the most profitable farms was $8.52 as compared with $10.24 for the least profitable group. The cost of power and machinery was 38 cents per crop acre lower for the more successful farms, but the man labor cost was 34 cents an acre higher. Both the investment per farm and the expense per acre for improvements were less for the more profitable farms. The less profitable farms had a loss of $327 per farm in the feed and grain account, whereas the more profitable farms had an increase from this source.

The expenses per acre were exactly equal to the receipts per acre for the more profitable farms as compared with a loss of $4.89 per acre for the less profitable group. For the first group this was a return of 0% on the capital invested in the business and for the second group a loss of 6.64%. The higher income per acre on the more profitable farms was due largely to the better crop yields and to the more efficient livestock. The lower expenses per acre were due to savings made on the more profitable farms in the machinery, and improvements accounts.

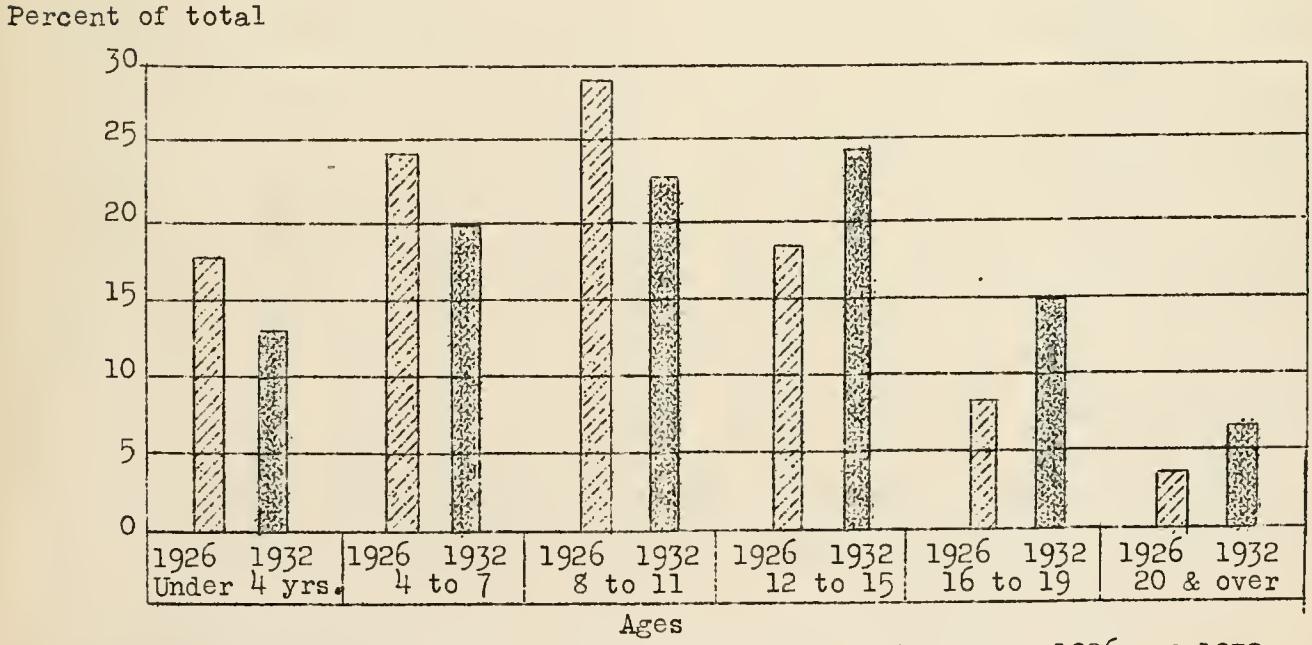
The Farm Power Problem

In 1931 power and machinery costs for the state as a whole averaged over $1 per crop-acre lower than in 1930. On the most profitable farms the cost for this item averaged about $1 per crop-acre lower than on the least profitable farms. On many farms, 1932 power and machinery costs may be materially reduced.

Thousands of farm records show that Illinois farms may be operated efficiently with either horses alone or with both horses and tractor. The choice of the type of power depends upon the organization of the farm and the personal qualifications of the operator. Some operators are skillful mechanics while other are clever with horses. A study of a group of farms of the same size, all located on the same type of soil and having the same amount of livestock, indicated that in 1930 total man labor, power and machinery costs were practically the same for both horse and tractor farms.

High Percentage of Old Horses. The number of colts on Illinois farms is declining and the proportion of old horses increasing according to a recent study of the ages of horses on 1,157 farms. These farms had 155 colts less than a year old, 180 yearlings, 244 two-year-olds, and 293 three-year-olds. At the present rate of increase and allowing for no deaths at all, there will be only 3,100 horses less than 21 years old on these farms at the end of a 20-year period, as compared with the 6,973 horses now on these farms. In other words, present replacements will furnish in 20 years much less than half our present number of horses. To meet their needs for power, Illinois farmers must replace more horses with mechanical power, raise more colts, or do both. Farmers who plan to use horses in the future should start now to raise or buy some young ones, since the price of horses has already started to rise.

Changes that have taken place in the last 7 years in the number of horses of various ages on Illinois farms are shown by the following chart:



Percentage Distribution of Horses by Ages--Illinois Farms, 1926 and 1932

Variations in Earnings Over Five-Year Period

Some comparative investment and earning data on accounting farms in southeastern Illinois for 1927 and 1931 are shown in the following table. The rate earned dropped sharply in 1930 and again in 1931. The average land value was $2 per acre higher in 1930 than in 1931. Both the gross income and the operating cost per acre were lower in 1931 than in 1930. The increase from crops was higher and the increase from livestock was lower in 1931 than in 1930. The crop increase was due to superior crop yields in 1931.

Comparison of Earnings and Investments on Accounting Farms in White, Wabash, Edwards, Gallatin and Saline Counties for 1927-1931

Items	1927[1]	1928[1]	1929	1930[2]	1931
Number of farms	30	43	52	41	39
Average size of farms, acres	180	168	166	173	205
Average rate earned, to pay for management, risk and capital	4.2	2.7	6.3	-1.5	-2.89
Average labor and management wage	$439	$249	$802	$-368	$-1032
Gross income per acre	14.60	12.54	17.50	9.36	5.71
Operating cost per acre	10.10	10.04	10.96	10.64	8.39
Average value of land per acre	74	57	68	50	61
Total investment per acre	107	92	104	84	93
Investment per farm in:					
Total livestock	1499	1512	1674	1779	1600
Cattle	372	472	686	751	602
Hogs	468	362	367	343	359
Poultry	188	175	163	188	198
Gross income per farm	2623	2112	2905	1621	1172
Income per farm from:					
Crops	516	338	680	---	20
Miscellaneous income	198	95	84	102	82
Total livestock	1909	1679	2141	1519	1070
Cattle	222	271	301	89	35
Dairy sales	531	371	430	334	246
Hogs	732	590	919	711	487
Poultry	402	378	450	367	278
Average yield of corn in bu.	36	32	44	19	34.
Average yield of wheat in bu.	13	7	16	16	26.

[1] Some records for Marion and Jefferson Counties included for 1927 and 1928.

[2] Records for Pope and Williamson Counties included for 1930.

Investments, Receipts, Expenses, and Earnings on 39 White, Wabash, Edwards, Galatin and Saline County Farms, 1931

Items	Your farm	Average of 39 farms	13 most profitable farms	13 least profitable farms
CAPITAL INVESTMENTS				
Land		12 632	11 506	8 728
Farm improvements		2 499	2 253	2 722
Livestock total		1 600	1 605	1 769
Horses		367	314	339
Cattle		602	704	579
Hogs		359	378	435
Sheep		74	54	106
Poultry		198	155	310
Machinery and equipment		1 091	1 160	903
Feed, grain and supplies		1 234	1 112	1 140
Total capital investment	$_____	$19 056	$17 636	$15 262
RECEIPTS AND NET INCREASES				
Livestock total	_____	1 070	1 296	1 012
Horses		---	---	2
Cattle		35	103	---
Hogs		487	530	407
Sheep		24	33	17
Poultry		57	84	41
Egg sales		221	181	325
Dairy sales		246	365	220
Feed, grain and supplies		20	153	---
Labor off farm		56	117	35
Miscellaneous receipts		26	13	62
Total receipts & net increases	$_____	$ 1 172	$ 1 579	$ 1 109
EXPENSES AND NET DECREASES				
Farm improvements		169	131	227
Horses		18	1	---
Miscellaneous livestock decreases cattle		---	---	18
Machinery and equipment		261	217	280
Feed, grain and supplies		---	---	327
Livestock expense		21	15	33
Crop expense		168	122	183
Hired labor		181	169	202
Taxes		243	255	186
Miscellaneous expenses		22	22	28
Total expenses & net decreases	$_____	$ 1 083	$ 932	$ 1 484
RECEIPTS LESS EXPENSES	$_____	$ 89	$ 647	$ -375
Total unpaid labor	$_____	$ 640	$ 647	$ 639
Operator's labor		472	480	455
Family labor		168	167	184
Net income from investment and management		-551	0	-1 014
RATE EARNED ON INVESTMENT	_____ %	-2.89 %	0 %	-6.64 %
Return to capital and operator's labor and management		-79	480	-559
5% of capital invested		953	882	763
LABOR AND MANAGEMENT WAGE	$_____	$-1 032	$ -402	$-1 322

Chart for Studying the Efficiency of Various Parts of Your Business

White, Wabash, Edwards, Gallatin, and Saline Counties, 1931

The numbers between the lines across the middle of the page are the approximate averages for the 39 farms included in this report for the factors named at the top of the page. By drawing a line across each column at the number measuring the efficiency of your farm in that factor, you can compare your efficiency with that of other farmers in your locality.

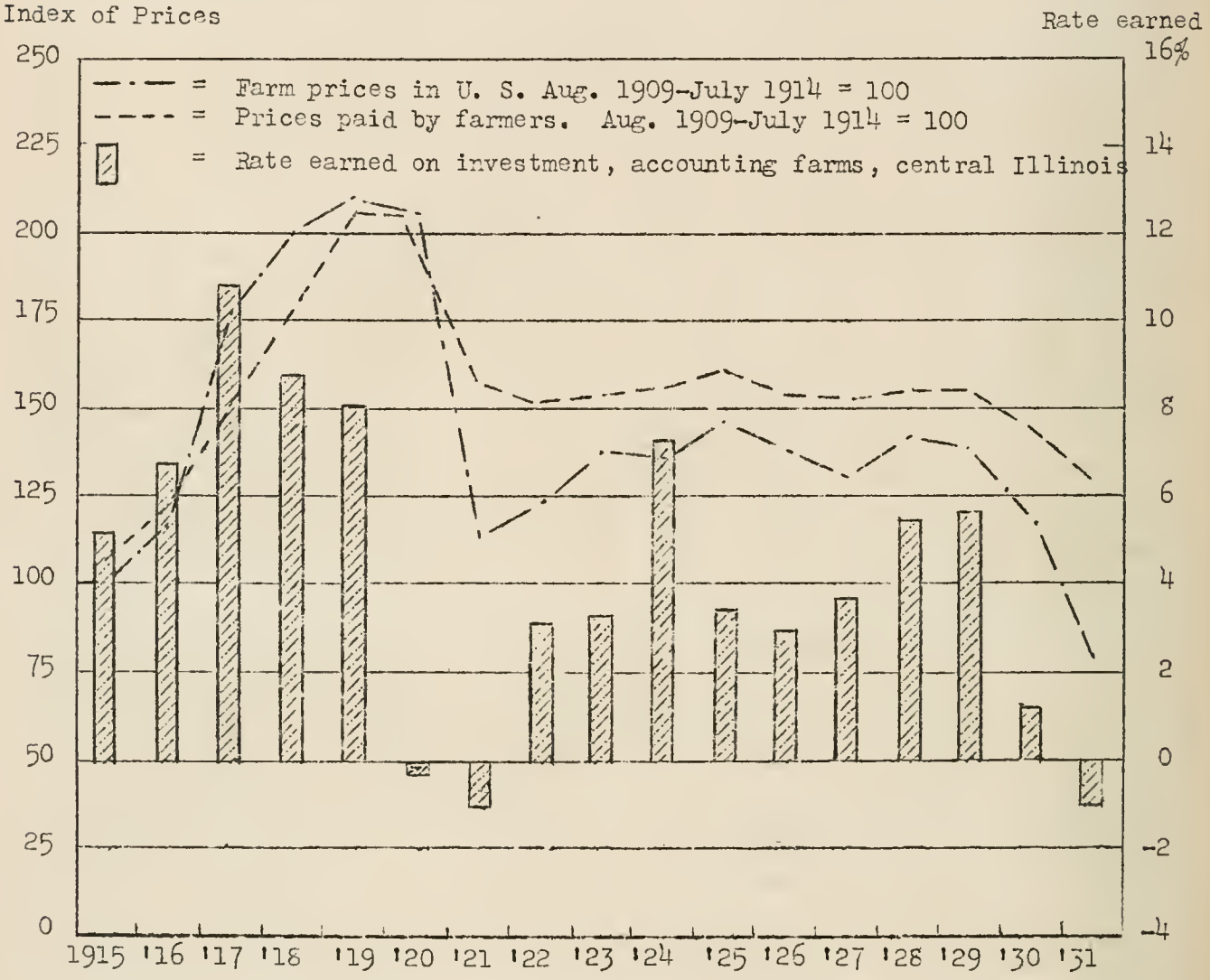
Rate earned	Bushels per acre of			Returns per $100 invested in:		Hogs-income per litter	L. S. income per $100 worth of feed fed	Dairy sales per dairy cow	Invest. per A. in livestock	Power & equip. cost per crop acre	Cost per $100 income		Gross receipts		Size of farm
											Man labor	Operating expense	Per acre	Per farm	
	Corn	Oats	Wheat	Cattle	Poultry										
4.0	48	59	40	122	227	91	195	117	12	----	44	112	13	2 600	340
3.0	46	57	38	112	217	86	185	107	11	.30	47	117	12	2 400	320
2.0	44	55	36	102	207	81	175	97	10	.80	50	122	11	2 200	300
1.0	42	53	34	92	197	76	165	87	9	1.30	53	127	10	2 000	280
0.0	40	51	32	82	187	71	155	77	8	1.80	56	132	9	1 800	260
-1.0	38	49	30	72	177	66	145	67	7	2.30	59	137	8	1 600	240
-2.0	36	47	28	62	167	61	135	57	6	2.80	62	142	7	1 400	220
-3.0	34	45	26	52	157	56	125	47	5	3.30	65	147	6	1 200	200
-4.0	32	43	24	42	147	51	115	37	4	3.80	68	152	5	1 000	180
-5.0	30	41	22	32	137	46	105	27	3	4.30	71	157	4	800	160
-6.0	28	39	20	22	127	41	95	17	2	4.80	74	162	3	600	140
-7.0	26	37	18	12	117	36	85	7	1	5.30	77	167	2	400	120
-8.0	24	35	16	2	107	31	75	---	0	5.80	80	172	1	200	100
-9.0	22	33	14	---	97	26	65	---	---	6.30	83	177	0	0	80
-10.0	20	31	12	---	87	21	55	---	---	6.80	86	182	---	---	60

Factors Helping to Analyze the Farm Business on 39 White, Wabash, Edwards, Gallatin and Saline County Farms in 1931

Items	Your farm	Average of 39 farms	13 most profitable farms	13 least profitable farms
Size of farm--acres		205	185	207
Percent of land area tillable		87.2	85.3	84.8
Gross receipts per acre		5.71	8.52	5.35
Total expenses per acre		8.39	8.52	10.24
Net receipts per acre		-2.68	---	-4.89
Value of land per acre		61	62	42
Total investment per acre		93	95	74
Acres in Corn		59.5	52.1	55.3
Oats		15.8	11.6	15.2
Wheat		36.6	34.9	27.3
Soybeans		3.6	3.8	2.5
Crop yields--Corn, bu. per acre		33.6	37.6	32.4
Oats, bu. per acre		45.3	50.9	41.5
Wheat, bu. per acre		26.3	29.3	26.5
Value of feed fed to productive livestock		853	946	951
Returns per $100 of feed fed to productive livestock		125	137	104
Returns per $100 invested in:				
Cattle		52	71	40
Poultry		157	177	140
Pigs weaned per litter		6.3	6.6	6.2
Income per litter farrowed		56	75	42
Dairy sales per dairy cow		47	69	48
Investment in productive livestock per acre		5.29	6.26	5.71
Receipts from productive livestock per acre		5.21	6.99	4.79
Power and machinery cost per crop acre		3.28	3.11	3.49
Machinery cost per crop acre		1.91	1.77	2.22
Value of feed fed to horses		169	163	162
Man labor cost per $100 gross income		65	50	73
Man labor cost per acre		3.72	4.23	3.89
Expenses per $100 gross income		147	100	192
Farm improvements cost per acre		.83	.71	1.10
Farms with tractor		41	38	69
Excess of sales over cash expenses		788	940	717
Decrease in inventory		699	293	1 092

Farm Earnings and the General Price-Level

Records of Illinois farm earnings available since 1915 show that farm profits drop rapidly during periods when the general price-level is declining. This was true for the years 1920 and 1921 and also for 1930 and 1931. (See graph).



INFLUENCE OF PRICE CHANGES ON FARM EARNINGS 1915-1931

Farm earnings reflect immediately changes in the farmers' purchasing power. The decline in the general price level which started in 1920 caused a wide spread to occur between the prices paid by farmers for goods purchased and the prices received for farm products sold. This spread narrowed from 1923 to 1929 but widened again in 1930 and 1931. The average rate earned on investment on account keeping farms in central Illinois, which was 8 percent in 1919, dropped to a loss of 1 percent in 1921 and recovered to an average of about 4 percent for the period 1922 to 1929. When the price-level went down again in 1930, the rate earned on investment dropped to about 1 percent and in 1931 the average for account-keeping farms in central Illinois indicated a loss of about 1 percent.

Summary of Farm Business Reports on One Thousand Five Hundred and Twenty-five Farms in Illinois for 1931

Prepared by P. E. Johnston, L. Wright, and H. C. M. Case

The average net income per farm for 1931 varied widely in different parts of the state (Table 22). There were only two counties where the average for all account keepers indicated a net farm income, since in all other areas of the state this item was a net farm loss. Ford county with a net farm income of $66 per farm had the highest standing while Mercer county with an average loss of $1283 per farm represented the other extreme.

Earnings for the state as a whole were lower than for any year since 1921 as the result of the drastic slump of farm prices. Cash incomes were low and inventory losses were severe. The inventory losses also varied from one part of the state to another depending upon the crop yields in 1930 and 1931 as well as upon the amount of livestock on hand January 1, 1931. The farms with large inventories of grain and livestock on hand at the beginning of the year suffered more than farms with small inventories. The decrease in inventory was smallest in Effingham county where it averaged only $26 per farm and largest in Mercer county where the loss was $2392 per farm.

In reading the following tables it should be kept in mind that these data represent only those farms whose operators are progressive and businesslike enough to keep accounts and submit them for analysis. Repeated field studies have shown that the average farm operator enrolled in this accounting service earns a higher rate of interest on his invested capital than that of the average of the rank and file of all farmers. The difference previous to 1931 has averaged about 2 percent on the entire investment. (See explanatory note at the bottom of page 3.) With these facts in mind, the reader is cautioned against using these data to represent the average Illinois farm. Only the figures in the chart on page 3 have been calculated to represent the average farm.

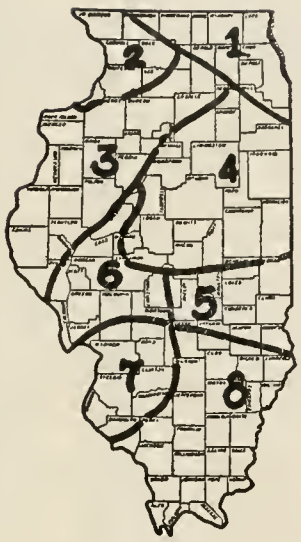
The reports which were prepared for the cooperators whose accounts are included in this summary contained in addition to the averages for all farms similar data for the one-third most profitable and the one-third least profitable farms. These reports were designed to show the reasons why the most profitable groups earned from $1000 to $2000 more per farm than the average of the least profitable farms in the same area. The cooperators are enabled to compare all phases of their business with the local standards set up by the averages shown for their neighbors who have similar conditions under which to operate. These records are often used by the cooperating farmers to make adjustments which result in increased earnings.

Area 2. Mixed livestock
1924 — 2.3%
1925 — 5.3%
1926 — 3.6%
1927 — 1.6%
1928 — 3.8%
1929 — 3.7%
1930 — .8%
1931 — 2.4% loss

Area 3. Beef and hogs
1924 — 4.3%
1925 — 4.3%
1926 — 2.3%
1927 — 1.5%
1928 — 3.7%
1929 — 3.7%
1930 — .3%
1931 — 2.2% loss

Area 6. General farming (wheat and corn)
1924 — 3.3%
1925 — 4.8%
1926 — 2.5%
1927 — 1.7%
1928 — 3.6%
1929 — 4.0%
1930 — .1% loss
1931 — 2.0% loss

Area 7. Wheat and Dairying
1924 — 3.3%
1925 — 4.3%
1926 — 2.1%
1927 — 2.5%
1928 — 3.5%
1929 — 4.1%
1930 — 1.0% loss
1931 — 1.0% loss



State
1924 — 4.5%
1925 — 3.3%
1926 — 2.3%
1927 — 1.8%
1928 — 2.9%
1929 — 3.7%
1930 — .4% loss
1931 — 1.7% loss

Area 1. Dairying
1924 — 4.3%
1925 — 2.8%
1926 — 2.9%
1927 — 2.7%
1928 — 3.7%
1929 — 3.7%
1930 — 1.1%
1931 — 1.0% loss

Area 4. Grain farming
1924 — 5.5%
1925 — 1.8%
1926 — 1.5%
1927 — 2.0%
1928 — 3.6%
1929 — 3.7%
1930 — .8% loss
1931 — 1.0% loss

Area 5. General farming (corn)
1924 — 6.3%
1925 — 2.3%
1926 — 2.3%
1927 — 1.6%
1928 — 2.0%
1929 — 2.7%
1930 — .2%
1931 — 1.5% loss

Area 8. Mixed farming
1924 — 4.3%
1925 — 4.3%
1926 — 4.3%
1927 — 1.6%
1928 — .5%
1929 — 3.8%
1930 — 3.1% loss
1931 — 2.0% loss

FIG. 50.—COMPUTED EARNINGS FOR ALL FARMERS IN ILLINOIS AND FOR THOSE IN DIFFERENT FARMING-TYPE AREAS

The computations for 1924-1930 inclusive were made on the basis of records which show that the average rate earned on all farms in a given area is about 2 percent less than on those farms enrolled in the farm-accounting project. In 1931 the usual difference between account-keeping farms and all farms was lacking, owing to greater inventory losses on farms having higher inventories of grain and livestock. In 1931 the average for all farms was estimated to be the same as for the account-keeping farms.

This page and the table on the last five pages are reprinted from the forty-fifth annual report of the Illinois Agricultural Experiment Station.

TABLE 22.—SUMMARY, BY AREAS, OF BUSINESS RECORDS FROM 1,525 ILLINOIS FARMS, 1931

Accounting items	Macoupin	Effingham	Montgomery, Bond, Shelby	Madison	Clinton	St. Clair, Randolph, Monroe, Washington	Clay, Jefferson, Marion, Richland, Jackson, Pope, Wayne, Johnson, Williamson, Franklin	White, Wabash, Edwards, Saline, Gallatin
Capital investment, total	$26 278	$13 198	$25 265	$17 526	$18 410	$18 738	$12 044	$19 056
Land	16 859	7 738	16 640	9 756	10 930	11 483	6 666	12 632
Farm improvements	3 594	1 913	3 115	2 876	2 695	2 899	1 988	2 499
Machinery and equipment	1 540	1 101	1 394	1 532	1 594	1 282	984	1 091
Feed, grain, and supplies	1 645	940	1 804	1 345	1 328	1 433	861	1 234
Livestock, total	2 640	1 506	2 312	2 017	1 863	1 641	1 545	1 600
Horses	383	333	354	309	404	376	343	367
Cattle	1 488	819	1 137	1 255	1 024	831	809	602
Hogs	516	107	565	234	142	222	146	359
Sheep	109	36	89	36	22	21	82	74
Poultry	139	211	167	183	271	191	165	198
Income, net increases, total	$ 1 617	$ 1 210	$ 1 665	$ 1 617	$ 1 688	$ 1 673	$ 1 274	$ 1 172
Feed and grain	.....	214	.....	.....	331	332	239	20
Labor and miscellaneous	61	72	69	86	96	33	90	82
Livestock total	1 556	924	1 596	1 531	1 261	1 308	945	1 070
Cattle	260	82	68	.....	30	68	145	35
Hogs	601	132	803	289	164	263	206	487
Sheep	65	17	28	6	8	10	16	24
Poultry and eggs	213	363	219	295	325	371	264	278
Dairy sales	417	330	478	941	734	596	314	246
Expenses, net decreases, total	$ 1 627	$ 563	$ 1 646	$ 1 313	$ 966	$ 1 148	$ 750	$ 1 083
Farm improvements	164	83	205	169	157	201	132	169
Machinery and equipment	353	127	315	278	201	277	150	261
Feed and grain	424	...	454	97	...	...	...	...
Crop expense	161	104	145	175	212	207	167	168
Hired labor	214	61	209	254	174	187	126	181
Taxes	248	140	238	198	152	179	132	243
Horses	5	17	15	25	26	40	13	18
Livestock and miscellaneous	53	31	65	117	44	57	30	43
Income less expense	$ − 10	$ 647	$ 19	$ 304	$ 722	$ 525	$ 524	$ 89
Total unpaid labor	833	653	673	663	692	708	704	640
Net farm income	$ −843	$ − 6	$ −654	$ −359	$ 30	$ −183	$ −180	$ −551

TABLE 22.—*Continued*

Rate earned on investment	−3.21%	− .05%	−2.59%	−2.05%	.16%	− .98%	−1.49%	−2.89%
Labor and management wage	$−1 587	$− 186	$−1 445	$− 758	$− 428	$− 649	$− 309	$−1 032
Size of farm, acres	221.3	196	237.8	156.1	169.8	176	206.8	205
Tillable land	84.8%	87.2%	86.1%	83.1%	87.7%	85.4%	82.4%	87.2%
Gross income an acre	$ 7.31	$ 6.18	$ 7.00	$ 10.36	$ 9.94	$ 9.51	$ 6.16	$ 5.71
Total expenses an acre	11.12	6.21	9.75	12.66	9.76	10.55	7.03	8.39
Net income an acre	−3.81	− .03	−2.75	−2.30	.18	−1.04	− .87	−2.68
Acres in—Corn	71.4	43	63.3	34.3	36.6	33.2	37.7	59.5
Oats	20.9	30.6	30.1	14.8	27.0	19.1	16.1	15.8
Wheat	24.4	16.7	21.1	34.6	43.5	49.5	19.4	36.6
Barley	....	....	....	....	....	....	....	....
Soybeans	21.9	3.5	14.6	2.0	1.0	1.7	3.1	3.6
Bushels an acre—Corn	32.8	34.3	30.5	33.9	34.7	34.3	30.9	33.6
Oats	46.5	34	36.4	36.4	36.7	44.4	34.1	45.3
Wheat	26.2	26.6	25.9	27.2	28.5	27.8	29.1	26.3
Barley	....	....	....	....	....	....	....	....
Soybeans	16.0	....	18.1	....	....	....	....	....
Returns for $100 of feed	$100	$146	$103	$127	$123	$149	$153	$125
Returns for $100 of poultry	159	177	141	178	123	199	166	157
Dairy sales from each cow	42	49	61	89	88	81	48	47
Return for each litter	48	53	46	45	48	60	48	56
Investment an acre in livestock	9.16	5.79	7.38	9.97	8.20	6.74	5.62	5.29
Income an acre from livestock	7.03	4.72	6.71	9.54	7.43	7.43	4.57	5.21
Power and machinery cost a crop acre	$ 3.42	$ 2.17	$ 3.22	$ 4.66	$ 3.35	$ 4.16	$ 1.82	$ 3.28
Labor cost for $100 gross income	62	57	51	55	49	52	60	65
Labor cost an acre	4.55	3.52	3.58	5.70	4.89	4.93	3.72	3.72
Expense for $100 gross income	152	100	139	122	98	111	114	147
Excess of sales over expenses	$1 022	$673	$1 181	$892	$937	$962	$633	$788
Decrease in inventory	1 032	26	1 162	588	215	437	109	699
Value of land an acre	$ 76	$ 40	$ 70	$ 62	$ 64	$ 65	$ 32	$ 61
Total investment an acre	119	67	106	112	108	106	58	93
Number of farms included	33	35	30	47	31	61	62	39

(Table 22 continued on next page)

TABLE 22.—SUMMARY, BY AREAS, OF BUSINESS RECORDS FROM 1,525 ILLINOIS FARMS, 1931—*Continued*

Accounting items	Clark, Crawford	Sangamon	Mason, Menard	Morgan	Scott	Greene	Jersey	Pike, Brown, Cass
Capital investment, total	$18 688	$48 700	$37 552	$42 543	$32 237	$36 651	$25 626	$29 910
Land	11 376	37 782	27 712	32 291	23 957	25 010	17 499	20 235
Farm improvements	3 094	4 210	3 834	4 130	2 866	4 626	3 005	3 743
Machinery and equipment	1 166	1 752	1 888	1 754	1 420	1 827	1 552	1 214
Feed, grain, and supplies	1 104	2 072	1 874	2 059	1 689	2 385	1 478	1 848
Livestock, total	1 948	2 884	2 244	2 309	2 305	2 803	2 092	2 870
Horses	350	579	599	412	392	473	459	416
Cattle	924	1 272	882	870	239	1 188	921	1 363
Hogs	419	816	599	840	775	953	562	845
Sheep	95	103	36	67	64	83	25	126
Poultry	160	114	128	120	135	106	125	120
Income, net increases, total	$ 1 501	$ 2 031	$ 1 709	$ 1 809	$ 1 834	$ 2 573	$ 1 499	$ 2 056
Feed and grain	.....	.....	347	185	334	.....	25	.....
Labor and miscellaneous	57	89	32	75	64	65	47	47
Livestock total	1 444	1 942	1 330	1 549	1 436	2 508	1 427	2 009
Cattle	183	342	194	99	240	114	...	415
Hogs	590	1 103	705	1 058	947	1 614	787	1 211
Sheep	42	13	5	3	12	25	5	20
Poultry and eggs	375	127	193	150	158	142	162	152
Dairy sales	254	357	233	239	79	613	473	211
Expenses, net decreases, total	$ 1 148	$ 2 197	$ 1 729	$ 1 544	$ 1 539	$ 2 902	$ 1 271	$ 1 942
Farm improvements	195	239	191	173	170	244	181	206
Machinery and equipment	148	468	432	389	346	405	335	313
Feed and grain	195	192	...	...	...	1 003	...	648
Crop expense	127	175	198	151	142	206	178	157
Hired labor	216	503	325	361	348	568	224	221
Taxes	200	488	440	348	430	330	244	283
Horses	17	40	69	48	40	39	32	39
Livestock and miscellaneous	50	92	74	74	63	107	77	75
Income less expense	$ 353	$ −166	$ − 20	$ 265	$ 295	$ −329	$ 228	$ 114
Total unpaid labor	639	675	741	743	714	741	790	748
Net farm income	$ −286	$ −841	$ −761	$ −478	$ −419	$−1 070	$ −562	$ −634

TABLE 22.—*Continued*

Rate earned on investment	−1.53%	−1.73%	−2.03%	−1.12%	−1.30%	−2.92%	−2.19%	−2.12%
Labor and management wage	$ −767	$−2 711	$−2 039	$−2 005	$−1 441	$−2 359	$−1 272	$−1 544
Size of farm, acres	202.8	268.1	257.5	234.5	252.8	251.7	203.8	217.9
Tillable land	84.2%	90.8%	88.2%	86.2%	81.8%	76.7%	86.1%	78.3%
Gross income an acre	$ 7.40	$ 7.58	$ 6.64	$ 7.71	$ 7.25	$ 10.22	$ 7.35	$ 9.43
Total expenses an acre	8.81	10.71	9.59	9.75	8.91	14.47	10.11	12.34
Net income an acre	−1.41	−3.13	−2.95	−2.04	−1.66	−4.25	−2.76	−2.91
Acres in—Corn	48.6	96.8	85.7	89.5	86.5	83.8	65.7	64.4
Oats	18.5	23.1	23.2	20.4	19.4	20.4	18.4	20.6
Wheat	21.1	42.2	53.9	40.2	46.1	35.8	46.9	26.2
Barley	....	....	....	....	....	....	....	3.1
Soybeans	....	19.1	10.9	18.4	3.5	3.9	5.2	....
Bushels an acre—Corn	39.6	43.3	42.8	47.9	49.7	39.0	35.1	42.5
Oats	35.0	45.5	33.8	40.4	35.9	39.8	42.8	35.7
Wheat	26.6	26.8	17.9	29.1	25.3	26.4	26.2	24.2
Barley	....	....	....	....	....	....	....	....
Soybeans	....	22.8	19.5	24.6	....	....	....	....
Returns for $100 of feed	$141	$111	$114	$119	$112	$113	$126	$123
Returns for $100 of poultry	235	124	158	133	123	146	137	137
Dairy sales from each cow	47	71	45	52	40	68	68	50
Return for each litter	62	55	58	41	54	56	57	55
Investment an acre in livestock	7.25	7.78	5.76	7.08	6.79	8.67	6.75	9.85
Income an acre from livestock	7.12	7.24	5.17	6.61	5.68	9.96	6.93	9.22
Power and machinery cost a crop acre	$ 2.36	$ 3.59	$ 3.55	$ 3.42	$ 3.29	$ 3.88	$ 3.59	$ 3.94
Labor cost for $100 gross income	54	56	61	58	55	49	65	45
Labor cost an acre	3.99	4.21	4.04	4.48	3.98	4.97	4.75	4.28
Expense for $100 gross income	119	141	145	126	123	142	137	131
Excess of sales over expenses	$840	$1 142	$920	$1 336	$1 032	$1 316	$1 328	$1 573
Decrease in inventory	487	1 308	940	1 071	737	1 645	1 100	1 459
Value of land an acre	$56	$141	$108	$138	$ 95	$ 99	$ 86	$ 93
Total investment an acre	92	182	146	181	128	146	126	137
Number of farms included	30	34	32	34	30	30	33	43

(Table 22 continued on next page)

TABLE 22.—SUMMARY, BY AREAS, OF BUSINESS RECORDS FROM 1,525 ILLINOIS FARMS, 1931—*Continued*

Accounting items	Logan, DeWitt, Piatt	Macon	Champaign	Ford	Iroquois, Kankakee	Edgar, Vermilion	Douglas, Coles, Moultrie	Christian
Capital investment, total	$51 586	$48 554	$49 532	$58 154	$44 547	$43 650	$44 559	$42 327
Land	40 132	37 102	39 659	47 181	32 376	31 863	34 531	33 020
Farm improvements	4 819	4 619	3 859	4 545	5 503	4 759	3 726	3 377
Machinery and equipment	1 773	2 051	1 890	1 822	1 633	2 042	1 868	2 193
Feed, grain, and supplies	2 685	2 420	2 389	2 392	2 613	2 248	2 305	1 805
Livestock, total	2 177	2 362	1 735	2 214	2 422	2 738	2 129	1 932
Horses	568	511	624	688	675	430	455	443
Cattle	848	1 227	633	976	974	1 187	1 004	781
Hogs	597	452	346	387	445	929	536	565
Sheep	51	30	28	26	168	61	46	58
Poultry	113	142	104	137	160	131	88	85
Income, net increases, total	$ 1 851	$ 1 741	$ 1 737	$ 2 650	$ 1 915	$ 1 894	$ 1 680	$ 1 291
Feed and grain	651	355	918	1 462	568	85	191	.....
Labor and miscellaneous	40	89	49	33	36	35	73	94
Livestock, total	1 160	1 297	770	1 155	1 311	1 774	1 416	1 197
Cattle	41	428	24	108	12	284	106	89
Hogs	592	362	342	451	434	1 038	800	761
Sheep	8	1	8	5	45	7	4	6
Poultry and eggs	124	211	150	182	230	184	133	98
Dairy sales	395	295	246	409	590	261	373	243
Expenses, net decreases, total	$ 1 834	$ 1 733	$ 1 531	$ 1 820	$ 1 649	$ 1 766	$ 1 620	$ 1 809
Farm improvements	189	194	217	257	249	224	198	175
Machinery and equipment	438	458	355	458	396	475	403	507
Feed and grain	...	...	...	...	...	...	...	97
Crop expense	212	165	138	175	178	180	175	193
Hired labor	365	344	268	326	270	361	315	283
Taxes	510	482	440	514	455	400	411	448
Horses	50	33	62	24	42	45	50	41
Livestock and miscellaneous	70	57	51	66	59	81	68	65
Income less expense	$ 17	$ 8	$ 206	$ 830	$ 266	$ 128	$ 60	$ −518
Total unpaid labor	765	650	709	764	811	666	732	764
Net farm income	$ −748	$ −642	$ −503	$ 66	$ −545	$ −538	$ −672	$ −1 282

TABLE 22.—*Continued*

Rate earned on investment	−1.45%	−1.32%	−1.02%	.11%	−1.22%	−1.23%	−1.51%	−3.03%
Labor and management wage	$−2 739	$−2 506	$−2 399	$−2 269	$−2 172	$−2 121	$−2 304	$−2 807
Size of farm, acres	269.9	227.2	232.6	275.4	241.5	239	246.9	260
Tillable land	91.3%	94.8%	96.2%	95.3%	93.2%	90.5%	90.2%	92.4%
Gross income an acre	$ 6.86	$ 7.66	$ 7.47	$ 9.62	$ 7.93	$ 7.92	$ 6.80	$ 4.97
Total expenses an acre	9.63	10.49	9.63	9.38	10.19	10.18	9.52	9.90
Net income an acre	−2.77	−2.83	−2.16	.24	−2.26	−2.26	−2.72	−4.93
Acres in—Corn	109.1	98.5	110.1	111.9	102.2	89.5	102.8	88.7
Oats	37.9	20.3	38.2	66.7	56.2	34.1	29.8	19.7
Wheat	28.2	21.6	15.7	13.9	10.6	25.2	22.7	23.7
Barley	....	....	....	....	....	....	....	....
Soybeans	20.8	28.8	26.3	1.4	3.6	17.0	22.0	62.8
Bushels an acre—Corn	46.6	44.6	46.1	44.1	41	46.9	42.4	27.5
Oats	47.0	45.6	46.2	46.9	39	49.6	47.5	40.9
Wheat	29.0	31	24.8	28.1	24.6	31.7	28.6	30.1
Barley	....	....	....	....	....	....	....	....
Soybeans	25.0	21.9	27.6	....	....	21.8	25.1	17.9
Returns for $100 of feed	$110	$130	$135	$125	$130	$119	$122	$104
Returns for $100 of poultry	118	157	154	145	151	147	158	122
Dairy sales from each cow	66	64	55	76	94	46	70	52
Return for each litter	51	48	46	53	48	66	58	46
Investment an acre in livestock	5.46	7.40	4.16	5.06	6.57	8.31	6.34	4.92
Income an acre from livestock	4.30	5.71	3.31	4.19	5.43	7.42	5.74	4.60
Power and machinery cost a crop acre	$ 3.15	$ 3.52	$ 2.89	$ 3.02	$ 3.34	$ 3.51	$ 3.16	$ 3.27
Labor cost for $100 gross income	59	55	54	40	55	53	61	79
Labor cost an acre	4.05	4.22	4.03	3.86	4.35	4.18	4.14	3.91
Expense for $100 gross income	140	137	129	98	128	128	140	199
Excess of sales over expenses	$1 466	$1 416	$1 428	$1 954	$1 542	$1 870	$1 193	$ 947
Decrease in inventory	1 449	1 408	1 222	1 124	1 276	1 742	1 133	1 465
Value of land an acre	$149	$163	$170	$171	$134	$133	$140	$127
Total investment an acre	191	214	213	211	184	183	180	163
Number of farms included	48	32	34	33	41	33	38	29

(Table 22 continued on next page)

TABLE 22.—SUMMARY, BY AREAS, OF BUSINESS RECORDS FROM 1,525 ILLINOIS FARMS, 1931—*Continued*

Accounting items	Will	McHenry, Lake, Kane, Cook, DuPage, Kendall	DeKalb	Boone	Stephenson, Winnebago	Jo Daviess	Ogle, Lee	Carroll, Whiteside, Rock Island
Capital investment, total	$35 823	$35 949	$39 270	$32 690	$31 278	$30 920	$39 743	$32 987
Land	23 715	22 627	23 952	17 681	17 110	18 217	25 340	20 715
Farm improvements	5 178	5 690	6 755	6 790	6 146	5 267	5 817	4 962
Machinery and equipment	2 068	1 955	1 991	1 843	1 913	1 704	2 075	1 877
Feed, grain, and supplies	2 053	2 128	2 468	2 376	2 110	2 032	2 393	2 006
Livestock, total	2 809	3 549	4 104	4 000	3 999	3 700	4 118	3 427
Horses	403	386	457	428	396	447	517	433
Cattle	1 774	2 514	2 109	2 611	2 454	2 243	2 586	1 720
Hogs	474	442	1 172	605	927	702	808	1 005
Sheep	9	43	185	218	67	168	68	98
Poultry	149	164	181	138	155	140	139	171
Income, net increases, total	$ 1 913	$ 3 106	$ 2 522	$ 3 078	$ 2 497	$ 2 141	$ 2 115	$ 2 089
Feed and grain	.....	.....	.....	.....	.....	.....	.....	.....
Labor and miscellaneous	30	38	46	28	51	89	42	60
Livestock, total	1 883	3 068	2 476	3 050	2 446	2 052	2 073	2 029
Cattle	.....	38	461	.....	215	81	564	279
Hogs	346	531	898	667	952	797	757	1 009
Sheep	5	7	40	66	10	19	25	18
Poultry and eggs	250	276	253	295	221	256	207	237
Dairy sales	1 282	2 216	824	2 022	1 048	899	520	486
Expenses, net decreases, total	$ 1 789	$ 2 307	$ 2 175	$ 2 525	$ 2 436	$ 2 061	$ 2 043	$ 2 344
Farm improvements	260	258	259	293	267	207	275	228
Machinery and equipment	539	528	454	500	401	362	480	386
Feed and grain	85	449	481	681	922	779	327	983
Crop expense	179	201	187	196	171	126	177	136
Hired labor	318	393	295	295	276	222	254	205
Taxes	279	336	359	285	280	226	422	287
Horses	10	37	40	18	23	51	18	38
Livestock and miscellaneous	119	105	100	257	96	88	90	81
Income less expense	$ 124	$ 799	$ 347	$ 553	$ 61	$ 80	$ 72	$ −255
Total unpaid labor	744	812	851	823	757	851	832	778
Net farm income	$ −620	$ −13	$ −504	$ −270	$ −696	$ −771	$ −760	$ −1 033

TABLE 22.—*Continued*

Rate earned on investment	−1.73%	− .04%	−1.28%	− .83%	−2.23%	−2.49%	−1.91%	−3.13%
Labor and management wage	$−1 821	$−1 236	$−1 891	$−1 349	$−1 676	$−1 727	$−2 148	$−2 094
Size of farm, acres	199.7	186.7	201.9	203	190.5	217.3	231.7	177.1
Tillable land	86.5%	84.3%	90.1%	83%	81.6%	68.2%	86.9%	84.4%
Gross income an acre	$ 9.57	$ 16.64	$ 12.49	$ 15.16	$ 13.11	$ 9.85	$ 9.13	$ 11.80
Total expenses an acre	12.67	16.71	14.99	16.49	16.76	13.40	12.41	17.63
Net income an acre	−3.10	− .07	−2.50	−1.33	−3.65	−3.55	−3.28	−5.83
Acres in—Corn	70.5	62.1	81.0	59.4	54.6	45.3	73.4	61.4
Oats	25.4	33.5	33.7	25.1	30.6	22.3	43.2	25.7
Wheat	21.3	....	3.9	....	3.2	2.4	5.3	5.5
Barley	13.2	16.6	15.9	24.2	14.2	10.5	11.3	6.2
Soybeans	....	....	....	....	....	....	....	....
Bushels an acre—Corn	35.6	42.6	46.6	43.8	41.6	39.9	48.6	44.7
Oats	29.3	40.6	50.1	31.6	22.7	40.0	44.4	41.2
Wheat	23.4	....	....	....	....	....	....	....
Barley	29.6	34.1	36.4	30.0	33.7	33.4	32.8	28.7
Soybeans	....	....	....	....	....	....	....	....
Returns for $100 of feed	$121	$145	$105	$124	$103	$ 90	$ 95	$ 93
Returns for $100 of poultry	179	180	146	207	149	192	160	153
Dairy sales from each cow	120	131	106	119	94	61	68	65
Return for each litter	51	49	44	59	59	53	62	48
Investment an acre in livestock	10.63	15.78	15.94	15.72	16.34	13.15	14.08	14.03
Income an acre from livestock	9.22	16.43	12.26	14.22	12.84	9.44	8.94	11.46
Power and machinery cost a crop acre	$ 4.51	$ 5.58	$ 4.19	$ 5.21	$ 4.91	$ 5.78	$ 4.24	$ 4.97
Labor cost for $100 gross income	54	38	44	36	40	49	50	46
Labor cost an acre	5.18	6.31	5.45	5.41	5.21	4.82	4.52	5.41
Expense for $100 gross income	132	100	120	109	128	136	136	149
Excess of sales over expenses	$1 210	$1 873	$2 032	$2 170	$2 017	$1 736	$1 663	$1 790
Decrease in inventory	1 086	1 074	1 685	1 617	1 956	1 656	1 591	2 045
Value of land an acre	$119	$121	$119	$ 87	$ 90	$ 84	$ 98	$117
Total investment an acre	179	193	195	161	164	142	172	186
Number of farms included	30	54	50	30	38	30	37	62

(Table 22 concluded on next page)

TABLE 22.—SUMMARY, BY AREAS, OF BUSINESS RECORDS FROM 1,525 ILLINOIS FARMS, 1931—*Continued*

Accounting items	Bureau, Henry	Mercer	Warren	Henderson	McDonough	Hancock	Adams	Fulton, Schuyler, Peoria
Capital investment, total	$38 506	$45 516	$39 745	$27 695	$38 068	$34 239	$23 274	$29 985
Land	26 948	31 029	27 915	19 285	27 491	25 016	15 519	20 419
Farm improvements	4 694	5 582	4 423	3 207	4 184	3 866	3 265	3 947
Machinery and equipment	1 771	1 711	1 711	1 274	1 573	1 458	1 264	1 504
Feed, grain, and supplies	2 227	2 898	2 084	1 471	1 978	1 618	1 311	1 493
Livestock, total	2 866	4 296	3 612	2 458	2 842	2 281	1 915	2 622
Horses	460	496	502	420	428	437	338	454
Cattle	1 241	1 665	1 725	806	1 125	920	802	1 021
Hogs	973	1 872	1 206	1 016	1 086	798	592	932
Sheep	41	133	49	118	66	26	68	97
Poultry	151	130	130	98	137	100	115	118
Income, net increases, total	$ 1 652	$ 2 815	$ 2 322	$ 1 421	$ 2 245	$ 1 549	$ 1 543	$ 1 668
Feed and grain	.....	.....	.....	.....	.....	.....	.....	.....
Labor and miscellaneous	34	44	25	31	36	23	63	103
Livestock, total	1 618	2 771	2 297	1 390	2 209	1 526	1 480	1 565
Cattle	225	490	584	181	309	129	38	34
Hogs	827	1 872	1 352	924	1 394	1 042	861	1 092
Sheep	1	38	6	21	7	13	25	25
Poultry and eggs	160	174	139	114	220	133	166	145
Dairy sales	405	197	216	150	279	209	390	269
Expenses, net decreases, total	$ 1 848	$ 3 368	$ 2 044	$ 1 480	$ 2 194	$ 1 442	$ 1 512	$ 1 556
Farm improvements	233	326	221	148	259	186	145	214
Machinery and equipment	468	471	426	326	350	268	342	260
Feed and grain	239	1 444	445	311	634	228	388	312
Crop expense	152	154	139	104	184	144	158	118
Hired labor	284	413	341	187	314	237	165	231
Taxes	335	401	336	292	327	276	225	307
Horses	43	48	11	49	41	45	21	51
Livestock and miscellaneous	94	111	125	63	85	58	27	63
Income less expense	$ −196	$ −553	$ 278	$ − 59	$ 51	$ 107	$ 31	$ 112
Total unpaid labor	780	730	729	701	713	693	764	759
Net farm income	$ −976	$ −1 283	$ −451	$ −760	$ −662	$ −586	$ −733	$ −647

TABLE 22.—*Concluded*

Rate earned on investment	−2.53%	−2.82%	−1.13%	−2.74%	−1.74%	−1.71%	−3.14%	−2.16%
Labor and management wage	$−2 305	$−2 969	$−1 845	$−1 555	$−1 979	$−1 731	$−1 323	$−1 557
Size of farm, acres	193.9	239.8	242.3	202.4	216.3	195.3	177.6	220
Tillable land	90.9%	83.2%	80%	81.5%	87.7%	91.6%	81.9%	74.4%
Gross income an acre	$ 8.52	$ 11.74	$ 9.58	$ 7.02	$ 10.38	$ 7.93	$ 8.69	$ 7.58
Total expenses an acre	13.55	17.09	11.44	10.78	13.44	10.93	12.82	10.52
Net income an acre	−5.03	−5.35	−1.86	−3.76	−3.06	−3.00	−4.13	−2.94
Acres in—Corn	85.0	92.7	95	83.2	82.2	73.6	50.5	66.2
Oats	34.4	33.5	35.2	30.6	28.8	28.2	26.8	23.7
Wheat	4.2	....	9.8	5.5	22.2	11.9	14.6	18.5
Barley	8.2	8.4	....	....	....	....	....	....
Soybeans	....	2.3	6.3	4.2	8.4	16.4	3.0	6.0
Bushels an acre—Corn	47.9	50.9	49.3	45.7	44.8	43.6	38.6	44.0
Oats	46.5	39.3	46.9	44.4	46.7	29.0	40.7	39.6
Wheat	....	....	23.1	....	23.1	22.0	22.6	23.8
Barley	33.6	30.3	....	....	....	....	....	....
Soybeans	....	....	....	....	....	19.9	....	....
Returns for $100 of feed	$ 92	$ 99	$113	$ 95	$110	$113	$111	$103
Returns for $100 of poultry	127	153	118	130	175	142	152	135
Dairy sales from each cow	70	39	43	36	49	39	61	46
Return for each litter	51	55	53	42	61	64	48	50
Investment an acre in livestock	10.83	13.78	11.30	8.32	9.20	8.09	7.72	8.32
Income an acre from livestock	8.34	11.55	9.48	6.87	10.21	7.81	8.33	7.11
Power and machinery cost a crop acre	$ 4.89	$ 4.15	$ 3.73	$ 3.68	$ 3.64	$ 3.20	$ 4.52	$ 3.65
Labor cost for $100 gross income	63	39	45	60	44	59	57	58
Labor cost an acre	5.34	4.60	4.33	4.24	4.60	4.65	4.92	4.36
Expense for $100 gross income	159	146	119	153	129	138	148	138
Excess of sales over expenses	$1 422	$1 839	$1 669	$1 277	$1 803	$1 240	$906	$1 368
Decrease in inventory	1 618	2 392	1 391	1 336	1 752	1 133	876	1 256
Value of land an acre	$139	$129	$115	$ 95	$127	$128	$ 87	$ 93
Total investment an acre	199	190	164	137	176	175	131	136
Number of farms included	30	46	30	50	39	30	31	46

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